

ATCA-7150 and RTM-ATCA-7150

Getting Started

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About this Manual

Overview of Contents

This document describes the ATCA-7150 and RTM-ATCA-7150 server suite (hereinafter referred to as the ATCA-7150 and RTM-ATCA-7150 suite) in the following aspects:

- Functions, features, and appearance of the ATCA-7150 and RTM-ATCA-7150
- How to install, deploy, and maintain the ATCA-7150 and RTM-ATCA-7150

The user must be a professional engineer in the server device field, who has been trained and is able to identify danger levels when operating the device.

The body part focuses on the operation process, while the appendix part contains a lot of supporting information. This helps you to get the required information quickly and accurately.

This manual is divided into the following chapters and appendices.

- *Safety Notes on page 17* lists safety notes applicable to the blade.
- *Sicherheitshinweise on page 23* is the German translation of the previous English safety notes (this had to be included for legal reasons).
- *Chapter 1, Introduction, on page 29* describes the main features of the ATCA-7150 and RTM-ATCA-7150.
- *Chapter 2, Installation of the RTM-ATCA-7150, on page 35* describes the installation of the RTM.
- *Chapter 3, Hardware Installation of ATCA-7150, on page 69* describes installation prerequisites including the blade installation itself of the front blade.
- *Troubleshooting on page 99* provides troubleshooting information.
- *Related Documentation on page 119* provides links to further ATCA-7150 and RTM-ATCA-7150-related documentation.

Abbreviations

This document uses the following abbreviations:

Abbreviation	Definition
ACA	Australian Communications Authority
BIOS	Basic Input/Output System
BMC	Baseboard Management Controller
CMOS	Complementary Metal Oxide Semiconductor
CPU	Central Processing Unit
DC	Direct Current
DIMM	Dual Inline Memory Module
ECC	Error Checking and Correcting
EIA	Electronics Industries Association
EMC	Electromagnetic Compatibility
ESD	Electro-Static Discharge
FBD	Fully Buffer DIMM
FC	Fiber Channel
FCC	Federal Communications Commission
FRU	Field Replaceable Unit
GE	Gigabit Ethernet
IEC	International Electrotechnical Commission
IPMB	Intelligent Platform Management BUS
IPMI	Intelligent Platform Management Interface
KVM	Keyboard, Video, and Mouse
OOS	Out of Service
PCI	Peripheral Component Interconnect
PEM	Power Entry Module
POST	Power-On Self Test
RAID	Redundant Arrays of Independent Disks

Abbreviation	Definition
RTM	Rear Transition Module
SAS	Serial Attached Small Computer System Interface
SCSI	Small Computer System Interface
SDR	Sensor Data Record
SEL	System Event Log
ShMC	Shelf Management Controller
SOL	Serial Over LAN
UL	Underwriters Laboratories Inc
USB	Universal Serial Bus

Conventions

The following table describes the conventions used throughout this manual.

Notation	Description
0x00000000	Typical notation for hexadecimal numbers (digits are 0 through F), for example used for addresses and offsets
0b0000	Same for binary numbers (digits are 0 and 1)
bold	Used to emphasize a word
Screen	Used for on-screen output and code related elements or commands in body text
Courier + Bold	Used to characterize user input and to separate it from system output
<i>Reference</i>	Used for references and for table and figure descriptions
File > Exit	Notation for selecting a submenu
<text>	Notation for variables and keys
[text]	Notation for software buttons to click on the screen and parameter description

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We welcome and appreciate your comments on our documentation. We want to know what you think about our manuals and how we can make them better.

Mail comments to us by filling out the following online form:

<http://www.emersonnetworkpowerembeddedcomputing.com/> > Contact Us > Online Form

In "Area of Interest" select "Technical Documentation". Be sure to include the title, part number, and revision of the manual and tell us how you used it.

Safety Notes

This section provides warnings that precede potentially dangerous procedures throughout this manual. Instructions contained in the warnings must be followed during all phases of operation, service, and repair of this equipment. You should also employ all other safety precautions necessary for the operation of the equipment in your operating environment. Failure to comply with these precautions or with specific warnings elsewhere in this manual could result in personal injury or damage to the equipment.

Emerson Network Power intends to provide all necessary information to install and handle the product in this manual. Because of the complexity of this product and its various uses, we do not guarantee that the given information is complete. If you need additional information, ask your Emerson Network Power representative.

The product has been designed to meet the standard industrial safety requirements. It must not be used except in its specific area of office telecommunication industry and industrial control.

Only personnel trained by Emerson Network Power or persons qualified in electronics or electrical engineering are authorized to install, remove or maintain the product.

The information given in this manual is meant to complete the knowledge of a specialist and must not be used as replacement for qualified personnel.

Keep away from live circuits inside the equipment. Operating personnel must not remove equipment covers. Only Factory Authorized Service Personnel or other qualified service personnel may remove equipment covers for internal subassembly or component replacement or any internal adjustment.

Do not install substitute parts or perform any unauthorized modification of the equipment or the warranty may be voided. Contact your local Emerson Network Power representative for service and repair to make sure that all safety features are maintained.

EMC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Emerson Network Power Embedded Computing could void the user's authority to operate the equipment. Board products are tested in a representative system to show compliance with the above mentioned requirements. A proper installation in a compliant system will maintain the required performance. Use only shielded cables when connecting peripherals to assure that appropriate radio frequency emissions compliance is maintained.

Operation

Damage of the Product

Surface of the Product

High humidity and condensation on the product surface causes short circuits.

Do not operate the product outside the specified environmental limits. Make sure the product is completely dry and there is no moisture on any surface before applying power.

Do not operate the product below -5°C.

Overheating and Damage of the Product

Operating the product without forced air cooling may lead to overheating and thus damage of the product.

When operating the product, make sure that forced air cooling is available in the shelf.

Configuration Jumpers

Malfunction of the Product

Reserved jumpers might carry production-related functions and can cause the product to malfunction if their setting is changed.

Therefore, do not change settings of jumpers marked as "Reserved".

Installation

Damage of the Product and Additional Devices and Modules

Incorrect installation or removal of additional devices or modules may damage the product or the additional devices or modules.

Before installing or removing additional devices or modules, read the respective documentation.

Damage of Circuits

Electrostatic discharge and incorrect installation and removal of the product can damage circuits or shorten their life.

Before touching the product or electronic components, make sure that you are working in an ESD-safe environment.

Damage of the Product

Incorrect installation of the product can cause damage of the product.

Only use handles when installing/removing the product to avoid damage/deformation to the face plate and/or PCB.

Damage to the Product/Backplane or System Components

Bent pins or loose components can cause damage to the product, the backplane, or other system components.

Therefore, carefully inspect the product and the backplane for both pin and component integrity before installation.

Emerson Network Power Embedded Computing (ENPEC) and our suppliers take significant steps to ensure there are no bent pins on the backplane or connector damage to the boards prior to leaving the factory. Bent pins caused by improper installation or by inserting boards with damaged connectors could void the ECC warranty for the backplane or boards.

Incorrect installation of the product can cause blade damage.

Only use handles for when installing/removing the product to avoid damage/deformation to the face plate and/or PCB

Cabling and Connectors

Damage of the Product

The RJ-45 connector(s) on the face plate are either twisted-pair Ethernet (TPE) or E1/T1/J1 interfaces. Connecting an E1/T1/J1 line to an Ethernet connector may damage the product.

- Make sure that TPE connectors near your working area are clearly marked as network connectors.
- Verify that the length of an electric cable connected to a TPE bushing does not exceed 100 meters.
- Make sure the TPE bushing of the product is connected only to safety extra low voltage circuits (SELV circuits).

If in doubt, ask your system administrator.

Laser

This product is a Class 1 laser product. The use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Environment

Always dispose of used blades, system components and RTMs according to your country's legislation and manufacturer's instructions.

Battery

Board/System damage

Incorrect exchange of lithium batteries can result in a hazardous explosion.

When exchanging the on-board lithium battery, make sure that the new and the old battery are exactly the same battery models.

If the respective battery model is not available, contact your local Emerson Network Power sales representative for the availability of alternative officially approved battery models.

Sicherheitshinweise

Dieses Kapitel enthält Hinweise, die potentiell gefährlichen Prozeduren innerhalb dieses Handbuchs vorrangestellt sind. Beachten Sie unbedingt in allen Phasen des Betriebs, der Wartung und der Reparatur des Systems die Anweisungen, die diesen Hinweisen enthalten sind. Sie sollten außerdem alle anderen Vorsichtsmaßnahmen treffen, die für den Betrieb des Produktes innerhalb Ihrer Betriebsumgebung notwendig sind. Wenn Sie diese Vorsichtsmaßnahmen oder Sicherheitshinweise, die an anderer Stelle dieses Handbuchs enthalten sind, nicht beachten, kann das Verletzungen oder Schäden am Produkt zur Folge haben.

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Das System erfüllt die für die Industrie geforderten Sicherheitsvorschriften und darf ausschließlich für Anwendungen in der Telekommunikationsindustrie und im Zusammenhang mit Industriesteuerungen verwendet werden.

Einbau, Wartung und Betrieb dürfen nur von durch Emerson ausgebildetem oder im Bereich Elektronik oder Elektrotechnik qualifiziertem Personal durchgeführt werden. Die in diesem Handbuch enthaltenen Informationen dienen ausschließlich dazu, das Wissen von Fachpersonal zu ergänzen, können dieses jedoch nicht ersetzen.

Halten Sie sich von stromführenden Leitungen innerhalb des Produktes fern. Entfernen Sie auf keinen Fall Abdeckungen am Produkt. Nur werksseitig zugelassenes Wartungspersonal oder anderweitig qualifiziertes Wartungspersonal darf Abdeckungen entfernen, um Komponenten zu ersetzen oder andere Anpassungen vorzunehmen.

Installieren Sie keine Ersatzteile oder führen Sie keine unerlaubten Veränderungen am Produkt durch, sonst verfällt die Garantie. Wenden Sie sich für Wartung oder Reparatur bitte an die für Sie zuständige Geschäftsstelle von Emerson. So stellen Sie sicher, dass alle sicherheitsrelevanten Aspekte beachtet werden.

EMV

Das Produkt wurde in einem Emerson Network Power Standardsystem getestet. Es erfüllt die für digitale Geräte der Klasse A gültigen Grenzwerte in einem solchen System gemäß den FCC-Richtlinien Abschnitt 15 bzw. EN 55022 Klasse A. Diese Grenzwerte sollen einen angemessenen Schutz vor Störstrahlung beim Betrieb des Produktes in Gewerbe- sowie Industriegebieten gewährleisten.

Das Produkt arbeitet im Hochfrequenzbereich und erzeugt Störstrahlung. Bei unsachgemäßem Einbau und anderem als in diesem Handbuch beschriebenen Betrieb können Störungen im Hochfrequenzbereich auftreten.

Wird das Produkt in einem Wohngebiet betrieben, so kann dies mit grosser Wahrscheinlichkeit zu starken Störungen führen, welche dann auf Kosten des Produktanwenders beseitigt werden müssen. Änderungen oder Modifikationen am Produkt, welche ohne ausdrückliche Genehmigung von Emerson Network Power EC durchgeführt werden, können dazu führen, dass der Anwender die Genehmigung zum Betrieb des Produktes verliert. Boardprodukte werden in einem repräsentativen System getestet, um zu zeigen, dass das Board den oben aufgeführten EMV-Richtlinien entspricht. Eine ordnungsgemässe Installation in einem System, welches die EMV-Richtlinien erfüllt, stellt sicher, dass das Produkt gemäss den EMV-Richtlinien betrieben wird. Verwenden Sie nur abgeschirmte Kabel zum Anschluss von Zusatzmodulen. So ist sichergestellt, dass sich die Aussendung von Hochfrequenzstrahlung im Rahmen der erlaubten Grenzwerte bewegt.

Warnung! Dies ist eine Einrichtung der Klasse A. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen. In diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen.

Betrieb

Beschädigung des Produktes

Hohe Luftfeuchtigkeit und Kondensat auf der Oberfläche des Produktes können zu Kurzschlüssen führen.

Betreiben Sie das Produkt nur innerhalb der angegebenen Grenzwerte für die relative Luftfeuchtigkeit und Temperatur. Stellen Sie vor dem Einschalten des Stroms sicher, dass sich auf dem Produkt kein Kondensat befindet und betreiben Sie das Produkt nicht unter -5°C.

Überhitzung und Beschädigung des Produktes

Betreiben Sie das Produkt ohne Zwangsbelüftung, kann das Produkt überhitzt und schließlich beschädigt werden.

Bevor Sie das Produkt betreiben, müssen Sie sicher stellen, dass das Shelf über eine Zwangskühlung verfügt.

Jumper

Fehlfunktion des Produktes

Schalter, die mit 'Reserved' sind, können mit produktionsrelevanten Funktionen belegt sein. Das Ändern dieser Schalter kann im normalen Betrieb Störungen auslösen.

Installation

Beschädigung des Produktes und von Zusatzmodulen

Fehlerhafte Installation von Zusatzmodulen, kann zur Beschädigung des Produktes und der Zusatzmodule führen.

Lesen Sie daher vor der Installation von Zusatzmodulen die zugehörige Dokumentation.

Beschädigung von Schaltkreisen

Elektrostatische Entladung und unsachgemäßer Ein- und Ausbau des Produktes kann Schaltkreise beschädigen oder ihre Lebensdauer verkürzen.

Bevor Sie das Produkt oder elektronische Komponenten berühren, vergewissern Sie sich, daß Sie in einem ESD-geschützten Bereich arbeiten.

Beschädigung des Produktes

Fehlerhafte Installation des Produktes kann zu einer Beschädigung des Produktes führen.

Verwenden Sie die Handles, um das Produkt zu installieren/deinstallieren. Auf diese Weise vermeiden Sie, dass das Face Plate oder die Platine deformiert oder zerstört wird.

Beschädigung des Produktes, der Backplane oder von System Komponenten
Verbogene Pins oder lose Komponenten können zu einer Beschädigung des Produktes, der Backplane oder von Systemkomponenten führen.
Überprüfen Sie daher das Produkt sowie die Backplane vor der Installation sorgfältig und stellen Sie sicher, dass sich beide in einwandfreien Zustand befinden und keine Pins verbogen sind.

Emerson Network Power Embedded Computing (ENPEC) und unsere Zulieferer unternehmen größte Anstrengungen um sicherzustellen, dass sich Pins und Stecker von Boards vor dem Verlassung der Produktionsstätte in einwandfreiem Zustand befinden. Verbogene Pins, verursacht durch fehlerhafte Installation oder durch Installation von Boards mit beschädigten Steckern kann die durch ECC gewährte Garantie für Boards und Backplanes erlöschen lassen.

Kabel und Stecker

Beschädigung des Produktes

Bei den RJ-45-Steckern, die sich an dem Produkt befinden, handelt es sich entweder um Twisted-Pair-Ethernet (TPE) oder um E1/T1/J1-Stecker. Beachten Sie, dass ein versehentliches Anschließen einer E1/T1/J1-Leitung an einen TPE-Stecker das Produkt zerstören kann.

- Kennzeichnen Sie deshalb TPE-Anschlüsse in der Nähe Ihres Arbeitsplatzes deutlich als Netzwerkanschlüsse.
- Stellen Sie sicher, dass die Länge eines mit Ihrem Produkt verbundenen TPE-Kabels 100 m nicht überschreitet.
- Das Produkt darf über die TPE-Stecker nur mit einem Sicherheits-Kleinspannungs-Stromkreis (SELV) verbunden werden.

Bei Fragen wenden Sie sich an Ihren Systemverwalter.

Laser

Einige Varianten des Produktes sind Laserprodukte der Klasse 1. Um nicht schädlicher Laserstrahlung ausgesetzt zu werden, beachten Sie die folgenden Hinweise: Anpassungen am Produkt, die Bedienung von Steuerelementen sowie die Durchführung von Prozeduren dürfen nur gemäß den Anweisungen in diesem Dokument erfolgen.

Umweltschutz

Entsorgen Sie alte Batterien und Blades/RTMs stets gemäß der in Ihrem Land gültigen Gesetzgebung und den Empfehlungen des Herstellers.

Batterie

Beschädigung des Produktes

Ein unsachgemäßer Einbau der Batterie kann gefährliche Explosionen und Beschädigungen des Produktes zur Folge haben.

Verwenden Sie deshalb nur den Batterietyp, der auch bereits eingesetzt wurde und befolgen Sie die Installationsanleitung.

Falls der entsprechende Batterietyp nicht verfügbar ist, kontaktieren Sie Ihren lokalen Emerson Network Power-Ansprechpartner und erfragen Sie die Verfügbarkeit von alternativen, offiziell zugelassenen Batteriemodellen.

1.1 Features

The ATCA-7150 and RTM-ATCA-7150 server blade suite features the capabilities of high speed calculation and mass data processing.

The ATCA-7150 and RTM-ATCA-7150 suite consists of:

- ATCA-7150 and RTM-ATCA-7150
- RTM-ATCA-7150

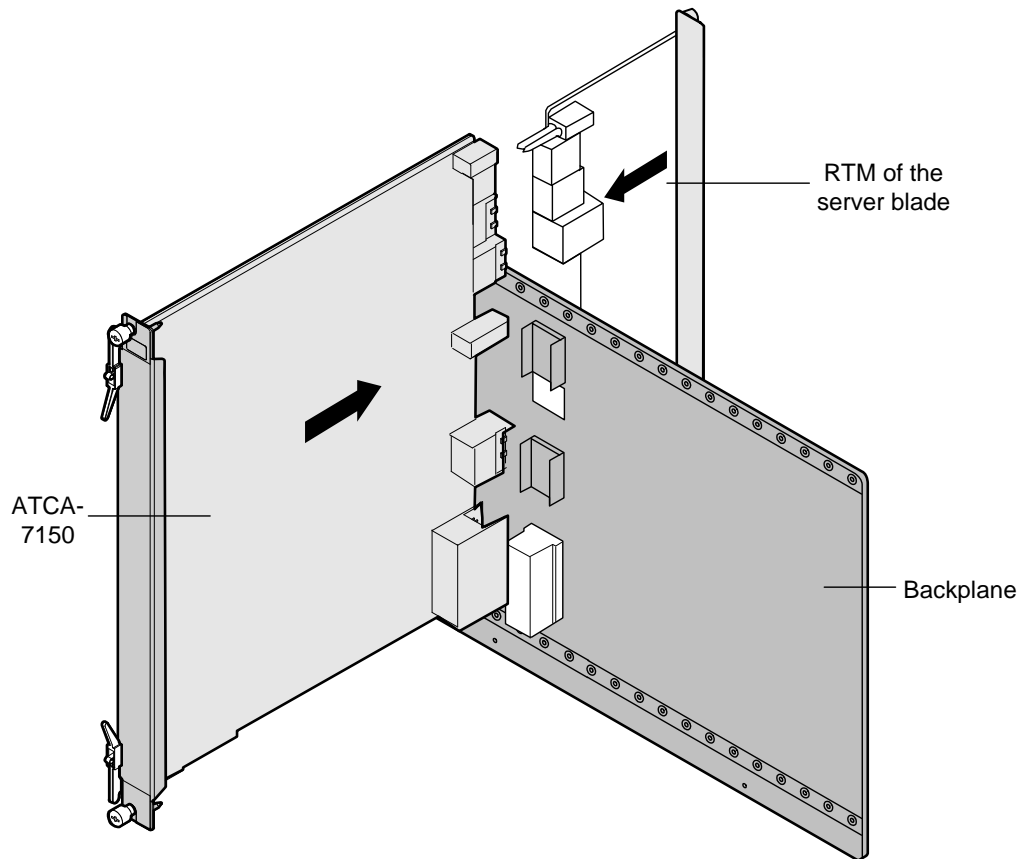
The RTM-ATCA-7150 is the rear transition module (RTM) of the server blade.

A server blade must work with an RTM of the server blade. For example, the ATCA-7150 works with the RTM-ATCA-7150.

You can install the ATCA-7150 in any node slot of your shelf. The RTM-ATCA-7150 is installed in the slot that is paired with the ATCA-7150 slot.

Figure 1-1 shows the connection between the ATCA-7150 and the RTM of the server blade.

Figure 1-1 Connection Between the ATCA-7150 and the RTM



You can choose to use the RTM-ATCA-7150 according to the actual application.

The backplane is one part of the shelf. For details on the backplane and shelf, refer to the respective system documentation.

Table 1-1 lists the functions of the ATCA-7150 and the RTM.

Table 1-1 Functions of the ATCA-7150 and the RTM

Function	Description
Processing functions	<ul style="list-style-type: none"> ● Supports two dual-core LV Intel Xeon 5138 (2.13 GHz) processors ● Supports 4 MB L2 cache ● Supports up to four FB-DIMMs ● Supports the DIMM with a capacity of 512 MB, 1 GB, 2 GB, or 4 GB. The maximum capacity is 16 GB
Interface functions	<ul style="list-style-type: none"> ● 10/100/1000Base-T ● 1000Base-BX ● 1000Base-BX ● Provides two USB 2.0 interfaces (compatible with USB 1.1) ● Provides one IPMC serial port (also used as the system serial port, the serial port standards are RS232 and RJ-45) ● Provides serial port to access CPU and IPMC serial console ● Provides two SAS hard disks ● The RTM-ATCA-7150 that works with the ATCA-7150 provides a monitor interface and a USB 2.0 interface (compatible with USB1.1). Through optional daughter cards, the RTM-ATCA-7150 can also provide external GE interfaces, and FC interfaces.
Management functions	<p>The ATCA-7150 provides the IPMC that is powered independently. The IPMC is connected to the ShMC through the redundant IPMB. The IPMC provides the following functions:</p> <ul style="list-style-type: none"> ● Environmental sensors temperature, voltage ● System Event Logs ● Watchdog timer ● Power-on, power-off, cold reset ● SOL(Serial Over LAN) ● FRU Hot-swap management ● E-Keying control
Integrity functions	<ul style="list-style-type: none"> ● Dual-channel GE controller ● IPMI ● SAS storage controller ● Video controller

1.2 Standard Compliances

This product meets the following standards.

Table 1-2 Standard Compliances

Standard	Description
UL 60950-1 EN 60950-1 IEC 60950-1 CAN/CSA C22.2 No 60950-1	Legal safety requirements
CISPR 22 CISPR 24 EN 55022 EN 55024 FCC Part 15 Industry Canada ICES-003 VCCI Japan AS/NZS CISPR 22 EN 300 386 NEBS Standard GR-1089 CORE	EMC requirements (legal) on system level (predefined Emerson Network Power system)
NEBS Standard GR-63-CORE ETSI EN 300019 series	Environmental requirements
PICMG 3.0	Defines mechanics, blade dimensions, power distribution, power and data connectors, and system management

1.3 Ordering Information

When ordering board variants or board accessories, use the order numbers given on the following pages.

1.3.1 Supported Board Models

The following table explains the product nomenclature used for the available board variants.

Table 1-3 Product Nomenclature

Order Number	Description
ATCA-7150-0GB	ATCA Processor Blade with Dual Core Intel® Xeon® Processor LV5138. Can be equipped with up to 16GB DDR2 memory. 1G fabric interface.
ATCA-7X50-MEM-2G	2G Memory Module (min 1, max 4 modules of the same type per blade)
ATCA-7X50-MEM-4G	4G Memory Module (min 1, max 4 modules of the same type per blade)
RTM-ATCA-7150-GE	Rear Transition Module for ATCA-7150, 2x 1G Ethernet
RTM-ATCA-7150-GE-FC	Rear Transition Module for ATCA-7150, 2x 1G Eth, 2x FC
ATCA7X50-HDD1-SAS	Enterprise Class HDD, SAS, 72GB
ATCA7X50-HDD2-SAS	Enterprise Class HDD, SAS, 146GB
ATCA7X50-HDD3-SATA	Automotive HDD, SATA, 80GB
ATCA-7150-8GB-1HDD1	ATCA Processor Blade with Dual Core Intel® Xeon® Processor LV5138, 8GB (4x 2GB) Memory, 1x Enterprise Class HDD, SAS, 72GB
ATCA7X50-SSD2-SATA	Solid State Disk, SATA, 32GB

1.3.2 Board Accessories

As of the printing date of this manual, the following board accessories were available.

Table 1-4 Available Board Accessories

Board Accesories	Order Number
Gigabit Ethernet (GE) daughter card	MEZC-RTM-7150-GE
Fiber Channel (FC) daughter card	MEZC-RTM-7150-FC

Table 1-4 Available Board Accessories (continued)

Board Accesories	Order Number
ATCA7X50-HDDx-SAS/SATA	ATCA7X50-HDD1-SAS ATCA7X50-HDD2-SAS ATCA7X50-HDD3-SATA
ATCA7X50	

Installation of the RTM-ATCA-7150

2.1 Overview

This chapter describes:

- Unpacking and inspecting RTM-ATCA-7150
- Precautions during the operation
- Preparations before installation
- Installation procedure
- Installing and replacing daughter cards
- Connection of external cables
- Removal procedure

2.2 Unpacking and Inspecting RTM-ATCA-7150

NOTICE

Damage of Circuits

Electrostatic discharge and incorrect installation and removal of the product can damage circuits or shorten their life.

Before touching the product or electronic components, make sure that you are working in an ESD-safe environment.

Shipment Inspection

To inspect the shipment, perform the following steps.

1. Verify that you have received all items of your shipment:
 - Printed "Getting Started" guide
 - RTM-ATCA-7150
 - Any optional items ordered
2. Check for damage and report any damage or differences to the customer service.

3. Remove the desiccant bag shipped together with the blade and dispose of it according to your country’s legislation.



The product is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, please contact our customer's service immediately.

2.3 Environmental and Power Requirements

The following environmental and power requirements are applicable to the board.

2.3.1 Environmental Requirements

Table 2-1 Environmental Requirements RTM-ATCA-7150

Requirement	Operating	Non-Operating
Temperature	+5°C (41°F) to +40°C (104°F) (normal operation) according to NEBS Standard GR-63-CORE -5°C to +55°C (short term operation) according to NEBS Standard GR-63-CORE	-40°C (-40°F) to +70°C (158°F) (may be further limited by installed accessories)
Temp. Change	+/- 0.25°C/min or 15°C/h (59°F/h) according to NEBS Standard GR-63-CORE	+/- 0.25°C/min or 15°C/h (59°F/h)
Rel. Humidity	5% to 85% non-condensing according to Emerson Network Power Embedded Computing-internal environmental requirements	5% to 85% non-condensing according to Emerson Network Power Embedded Computing-internal environmental requirements
Altitude	<= 4000m	

Table 2-1 Environmental Requirements RTM-ATCA-7150 (continued)


Requirement	Operating	Non-Operating
Vibration	1.0g from 5 to 100 Hz and back to 5 Hz at a rate of 0.1 octave/minute	5-20 Hz @ 0.01 g ² /Hz 20-200 Hz @ -3.0 dB/octave Random 5-20 Hz @ 1 m ² /Sec ³ Random 20-200 Hz @ -3 m/Sec ²
Shock	Half-sine, 11 m/Sec, 30mSec/sec ²	Blade level packaging Half-sine, 6 mSec at 180 m/Sec ²
Free Fall		1,200 mm/all edges and corners 1.0m (Packaged) per ETSI 300 019-2-2 (Blade level packaging) 100mm (unpackaged) per GR-63-CORE

2.3.2 Power Requirements

Table 2-2 Power Requirements RTM-ATCA-7150

Requirement	Operating
Power supply	Provided by the server blade
Maximum power consumption	14.2 W

2.4 Module Installation and Removal

	⚠ CAUTION
	<p>Personal Damage through Electric Shock There is current in the power cords and communication cables. Touching the connectors of the power cords and communication cables may cause electric shock. Do not touch the connectors of power cords and communication cables</p>

NOTICE
<p>Damage of Circuits Electrostatic discharge and incorrect installation and removal of the product can damage circuits or shorten their life. Before touching the product or electronic components, make sure that you are working in an ESD-safe environment.</p> <p>Module Damage If the blade is not fully aligned with the interface in the backplane, too much force may twist the pins on the blade or backplane. Do not exert too much force when you insert the blade.</p>

Note the following points at the time of installing RTM-ATCA-7150:

- Make sure that you wear an electrostatic discharge (ESD)-preventive wrist strap to prevent the static electricity from hurting you or damaging the device.
- Keep your personal objects such as your clothes away from RTM-ATCA-7150. To prevent the static electricity on clothing, you need to put on antistatic clothing.
- RTM-ATCA-7150 is installed in the slot paired with the server blade slot at the back side of the shelf. You should install RTM-ATCA-7150 before the server blade is installed. Otherwise, RTM-ATCA-7150 cannot be powered on normally.

- Hold the ejector handles and the face plate when you insert or remove RTM-ATCA-7150. Do not touch the components inside of the blades.
- Keep the blade vertical when you install RTM-ATCA-7150. Align the blade with the slot and then insert it in the shelf.

2.4.1 Ejector Handles

RTM-ATCA-7150 is powered by the server blade in the slot paired with the RTM-ATCA-7150 slot. RTM-ATCA-7150 does not support hot swap. The face plate of ATCA-7150 and RTM-ATCA-7150 provides an upper and a lower ejector handles. The ejector handles help to insert, remove, fasten, power on, and power off RTM-ATCA-7150.

2.4.2 ESD Prevention

Static electricity may hurt you or damage the device. To minimize the damage, pay attention to the following points:

- Before you operate the device, wear the ESD-preventive wrist strap. Both terminals of the ESD-preventive wrist strap must contact well. One terminal touches your bare skin, and the other is inserted in the jack at the front or back side of the shelf. For details on how to wear the ESD-preventive wrist strap, refer *Wearing the ESD-Preventive Wrist Strap*.
- Avoid moving your body as much as possible. Movement gathers static electricity around you.
- Do not touch the solder point, pin, or bare circuit.
- Do not leave the device in the place where others can operate it.
- Install the device at once after you take it out of the antistatic package. If you need to lay down the device, place it back in the antistatic package. Do not lay the device on the shelf or cabinet.
- Monitor the temperature and humidity of the equipment room. Warm air decreases the humidity and increases the static electricity in the room.

2.5 Installation Preparations

The installation preparations process includes:

- check the installation environment
- wear the ESD-preventive wrist strap
- remove the blank filler panels
- unpack and check the RTM-ATCA-7150 suite

2.5.1 Wearing the ESD-Preventive Wrist Strap

NOTICE

Module Damage

- Electrostatic discharge can damage circuits or shorten their life.
- The ESD-preventive wrist strap prevents only the static electricity on your body from damaging the blade. To prevent the static electricity on your clothes, it is recommended to wear the antistatic clothes. Additionally, you have to make sure that the cabinet and shelf are properly grounded - for details, refer to the corresponding system documentation.

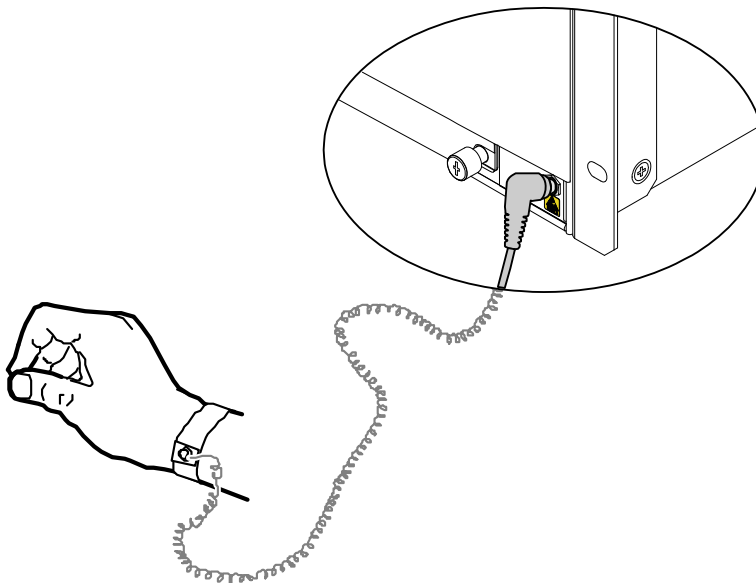
To wear the ESD-preventive wrist strap, proceed as follows:

1. Wrap the ESD-preventive wrist strap around your wrist, as shown in the figure below.
2. Fasten the latch. Make sure that the ESD-preventive wrist strap well touches your bare wrist.
3. Insert the grounding terminal of the ESD-preventive wrist strap in the jack of the cabinet or shelf.



There is a jack for inserting the ESD-preventive wrist strap respectively in the lower right corners at both front and back sides of the shelf.

Figure 2-1 Wearing the ESD-Preventive Wrist Strap



2.5.2 Removing Filler Blades



After a filler blade is removed, place it in the equipment room or other moisture-proof and dust-proof places.

You should install a blank filler blade in the slot after removing the blade. Otherwise, it may effect the ventilation, heat dissipation, electromagnetic shielding and dust prevention of the shelf.

If this is the first installation for the shelf, the blade is fully configured and the shelf is not powered on, you can remove all the filler blades. Then, install blades in the slots in order. This document takes the first installation as an example.

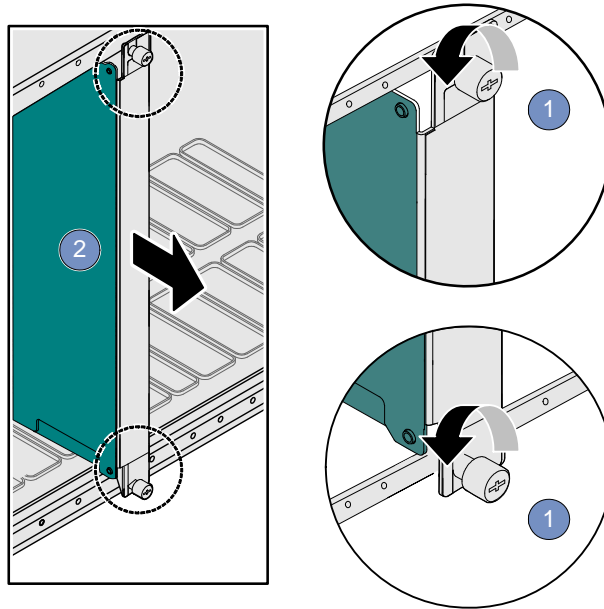
If you want to install multiple blades in the shelf that is powered on shelf, you can remove a filler blade and then install a blade one by one.

If the slot is occupied with a filler blade you have to remove it first.

To remove the filler blade, proceed as follows:

1. As shown in step 1 of the figure below, use a screwdriver to anticlockwise loosen the two captive screws on a filler blade.
2. As shown in step 2 of the figure below, remove the filler blade.

Figure 2-2 Removing the Filler Blade



2.6 Installing and Replacing Daughter Cards

2.6.1 Precautions

NOTICE

Incorrect installation or removal of additional devices or modules may damage the product or the additional devices or modules.

Before installing or removing additional devices or modules, read the respective documentation.

Electrostatic discharge and incorrect installation and removal of the product can damage circuits or shorten their life.

Before touching the product or electronic components, make sure that you are working in an ESD-safe environment.

Do not exert too much force when you insert the blade.

If the blade is not fully aligned with the interface in the backplane, too much force may twist the pins on the blade or backplane.



WARNING

Do not touch the connectors of power cords and communication cables.

There is current in the power cords and communication cables. Touch on the connectors of the power cords and communication cables may cause electric shock.

Note the following points at the time of installing or replacing components:

- Make sure that you wear an electrostatic discharge (ESD)-preventive wrist strap to prevent the static electricity from hurting you or damaging the device.
- Keep the area where the components reside clean and keep the components away from the heat-generating devices, such as radiators.

- Ensure that your sleeves are tightened or rolled up above the elbow. For safety purpose, it is not recommended to wear jewelry, watch, glasses with metal frame, or clothes with metal buttons.
- Do not exert too much force, or insert or remove the components forcibly. Avoid damage to the components or plug-ins, for example, the pins are bent or get short circuit.

2.6.2 Preparations

Before you install or replace a component, make the following preparations

- Confirming the feasibility of the operation
 - There are available spare parts of the component to be installed or replaced in the equipment warehouse. When the available spare parts are in short supply, contact Emerson Network Power Embedded Computing for help in time.
 - Make sure that the new component is in good condition, without defects such as oxidation, chemical corrosion, missing component, or transportation damage.
 - By reading this document, you are familiar with how to install and replace the component and master the skills required by the operation.
- Checking the environment

Make sure that the shelf, power supply, temperature, and humidity meet the operating requirements of the blades and components. For details, refer to ATCA-7150 Installation and Use Manual and other related documents.
- Preparing spare parts and tools
 - Prepare the component to be installed or replaced.
When you hold or transport the component, use the special antistatic package. In addition, you need to tidy, record, and repair the component during routine maintenance.
 - Prepare the cross screwdriver, screws, plastic supports, cooling gel, and ESD-preventive wrist strap.
The supplier provides a list of tools and negotiates with you to decide the tool provider.
- Confirming installation or changing positions

Confirm the positions of the cabinet, the shelf, and the slot where RTM-ATCA-7150 is installed. Then, stick a label on the face plate of RTM-ATCA-7150 to avoid wrong operation.

- Others
If a serious problem occurs and cannot be solved when you install or replace the component, contact Emerson Network Power Embedded Computing for technical support.

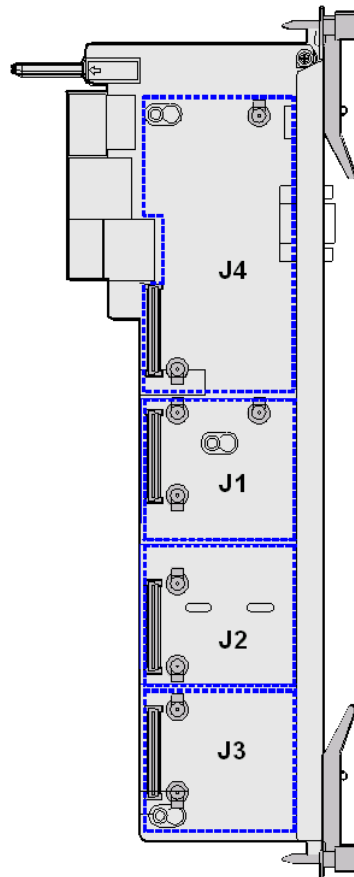
2.6.3 GE Daughter Card

This manual considers the GE daughter card providing two external Ethernet interfaces as an example, and describes how to install the daughter card on and remove it from RTM-ATCA-7150.

2.6.3.1 Installation Positions

When the GE daughter card is used with the RTM-ATCA-7150 it can be installed on the daughter card connector J1, J2, J3, J4. The default position as used on the RTM-ATCA-7150-GE is position J4. The default position as used on the RTM-ATCA-7150-GE-FC is position J1.

Figure 2-3 Structure of RTM-ATCA-7150



2.6.3.2 Installing the GE Daughter Card

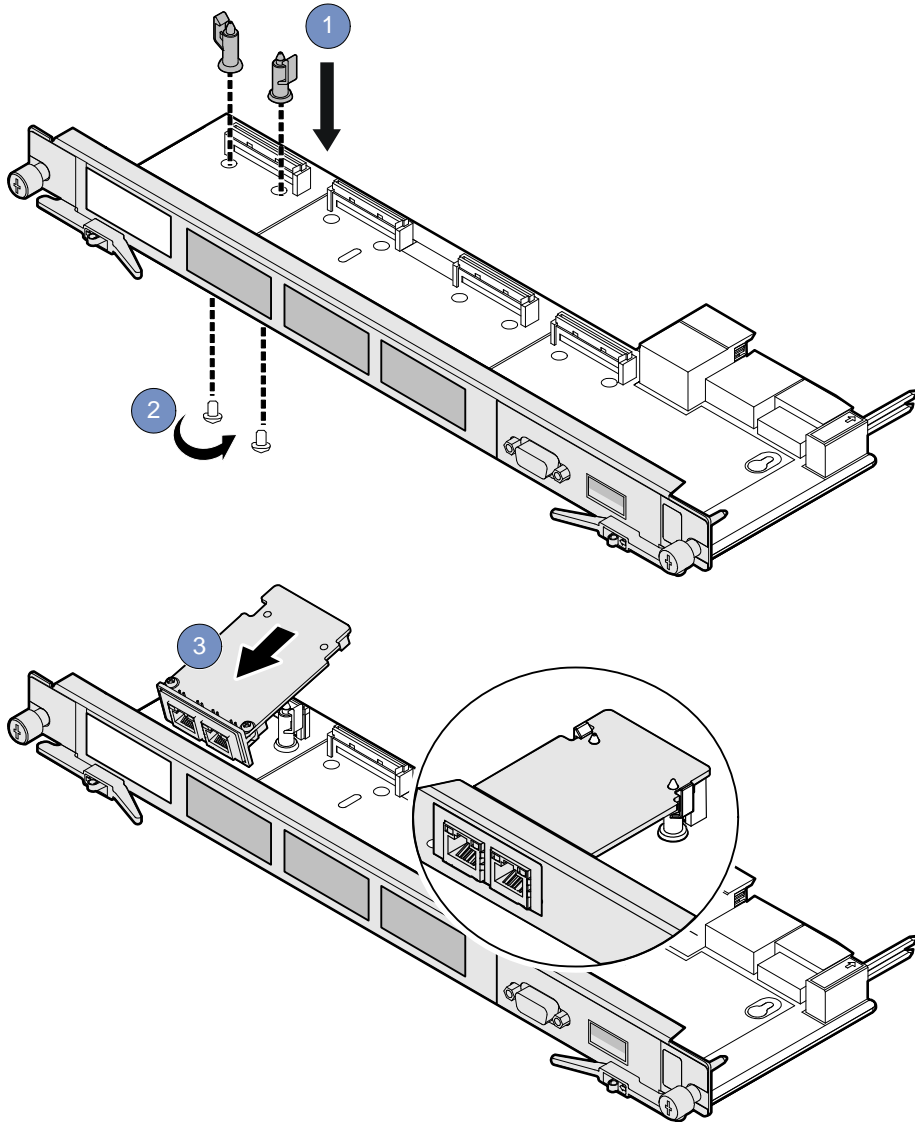
To install the GE daughter card, proceed as follows.

1. Wear the ESD-preventive wrist strap. For more information refer, *Wearing the ESD-Preventive Wrist Strap*.
2. Lay RTM-ATCA-7150 where the GE daughter card is to be installed on the antistatic desktop.
3. As shown in step 1 of the figure below, insert two plastic supports vertically in the holes used to fasten the GE daughter card.
4. As shown in step 2 of the figure below, at the back side of RTM-ATCA-7150, use a screwdriver to clockwise fasten the two screws used to fix the plastic supports.
5. Take the GE daughter card out of the antistatic package.

6. Insert the GE daughter card in RTM-ATCA-7150 by facing the daughter card at an angle of 45° to the RTM. Align the daughter card connector with the connector on RTM-ATCA-7150, and the daughter card positioning holes with the plastic supports on RTM-ATCA-7150. Exert even power downwards until the daughter card connector is fully inserted into the connector on RTM-ATCA-7150 and the daughter

card is fastened by the plastic latches. See step 3 in the figure below.

Figure 2-4 Installing the GE Daughter Card



7. Insert RTM-ATCA-7150 with the GE daughter card installed in the shelf. For more information refer, *Installing RTM-ATCA-7150*.

After installation, check if RTM-ATCA-7150 can be powered on and work normally. Use the network cable to connect RTM-ATCA-7150 to the external network. Check if the network is connected properly and monitor whether the network port indicator is normal.

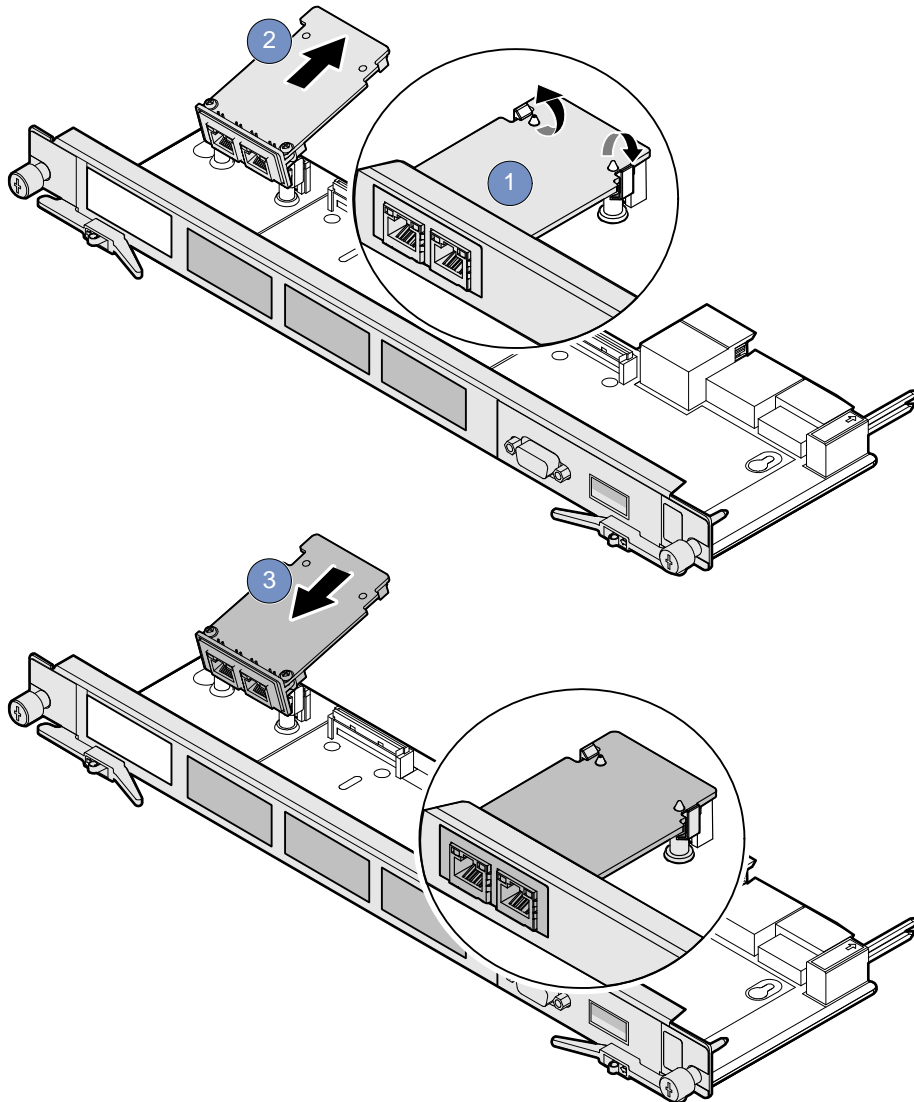
2.6.3.3 Replacing the GE Daughter Card

To replace the GE daughter card, proceed as follows.

1. Wear the ESD-preventive wrist strap. For more information refer, *Wearing the ESD-Preventive Wrist Strap*.
2. Remove the RTM-ATCA-7150 whose GE daughter card is to be replaced. For more information refer, *Removing RTM-ATCA-7150*.
3. As shown in step 1 of the figure below, open the plastic latches fastening the GE daughter card.
4. Exert even force upwards until the daughter card connector is removed from the connector on RTM-ATCA-7150. As shown in step 2 of the figure below, remove the daughter card by facing the daughter card at an angle of 45° to the RTM.
5. Place the removed GE daughter card in an antistatic package.

6. Take the new GE daughter card out of the antistatic package.

Figure 2-5 Replacing the GE Daughter Card.



7. Insert the GE daughter card in RTM-ATCA-7150 by facing the daughter card at an angle of 45° to the RTM. Align the daughter card connector with the connector on RTM-ATCA-7150, and the daughter card positioning holes with the plastic supports on RTM-ATCA-7150. Exert even power downwards until the daughter card connector is fully inserted into the connector on RTM-ATCA-7150 and the daughter card is fastened by the plastic latches. See step 3 in the figure above.
8. Install RTM-ATCA-7150 whose GE daughter card is replaced. For more information refer, *Installing RTM-ATCA-7150*.

After replacement, check if RTM-ATCA-7150 can be powered on and work normally. Use the network cable to connect RTM-ATCA-7150 to the external network. Check if the network is connected properly and monitor whether the network port indicator is normal.

2.6.4 FC Daughter Card

This manual considers the FC daughter card providing two external FC interfaces as an example, and describes how to install the daughter card on and remove it from RTM-ATCA-7150.

2.6.4.1 Installation Positions

When the FC daughter card is used with the RTM-ATCA-7150 it can be installed on the daughter card connector J2, J4. The default position as used on the RTM-ATCA-7150-GE-FC is position J4 and J1.

2.6.4.2 Installing the FC Daughter Card

To install the FC daughter card, proceed as follows.

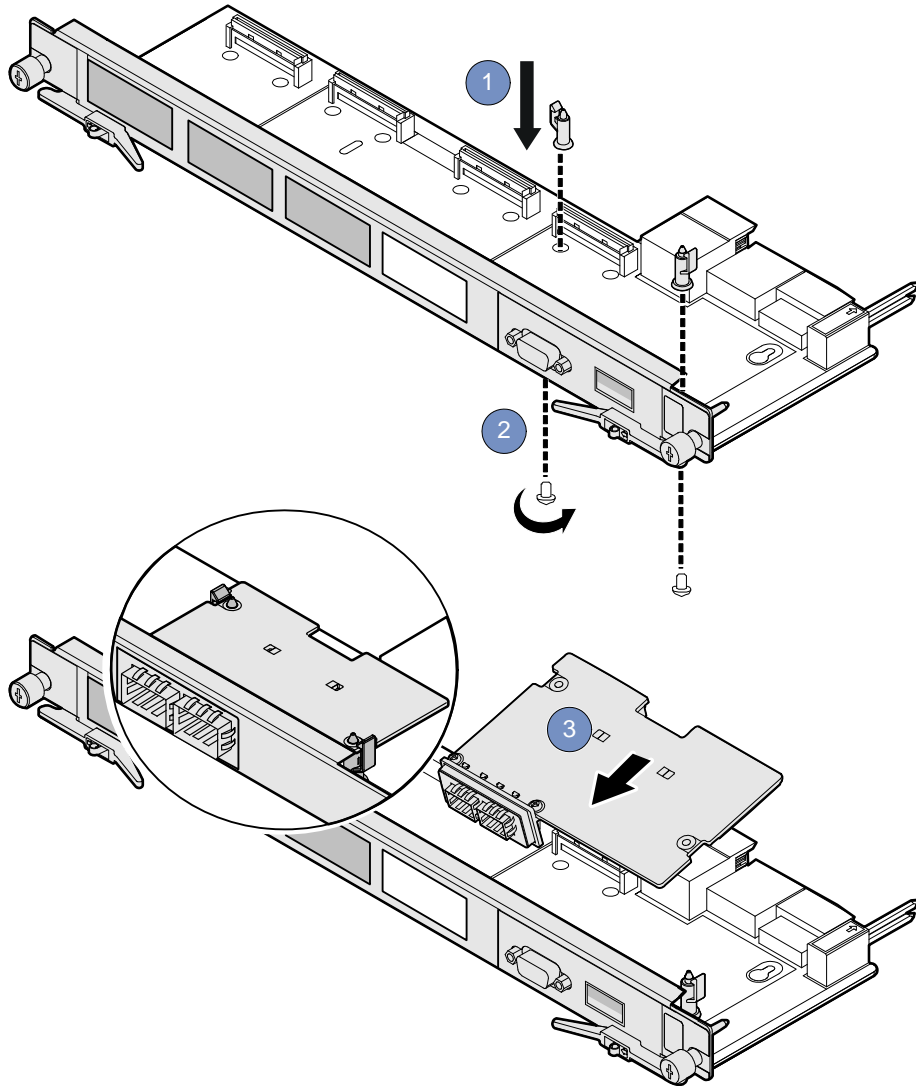
1. Wear the ESD-preventive wrist strap. For more information refer, *Wearing the ESD-Preventive Wrist Strap*.
2. Lay RTM-ATCA-7150 where the FC daughter card is to be installed on the antistatic desktop.

3. As shown in step 1 of the figure below, insert two plastic supports vertically in the holes used to fasten the FC daughter card.
4. As shown in step 2 of the figure below, at the back side of RTM-ATCA-7150, use a screwdriver to clockwise fasten the two screws used to fix the plastic supports.
5. Take the FC daughter card out of the antistatic package.

6. Insert the GE daughter card in RTM-ATCA-7150 by facing the daughter card at an angle of 45° to the RTM. Align the daughter card connector with the connector on RTM-ATCA-7150, and the daughter card positioning holes with the plastic supports on RTM-ATCA-7150. Exert even power downwards until the daughter card connector is fully inserted into the connector on RTM-ATCA-7150 and the daughter

card is fastened by the plastic latches. See step 3 in the figure below.

Figure 2-6 Installing the FC Daughter Card



7. Insert RTM-ATCA-7150 with the FC daughter card installed in the shelf. For more

information refer, *Installing RTM-ATCA-7150*.

After installation, check if RTM-ATCA-7150 can be powered on and work normally. Use the optical fiber to connect RTM-ATCA-7150 to the external storage system. Check if RTM-ATCA-7150 can transmit data normally and monitor whether the FC status indicator is normal.

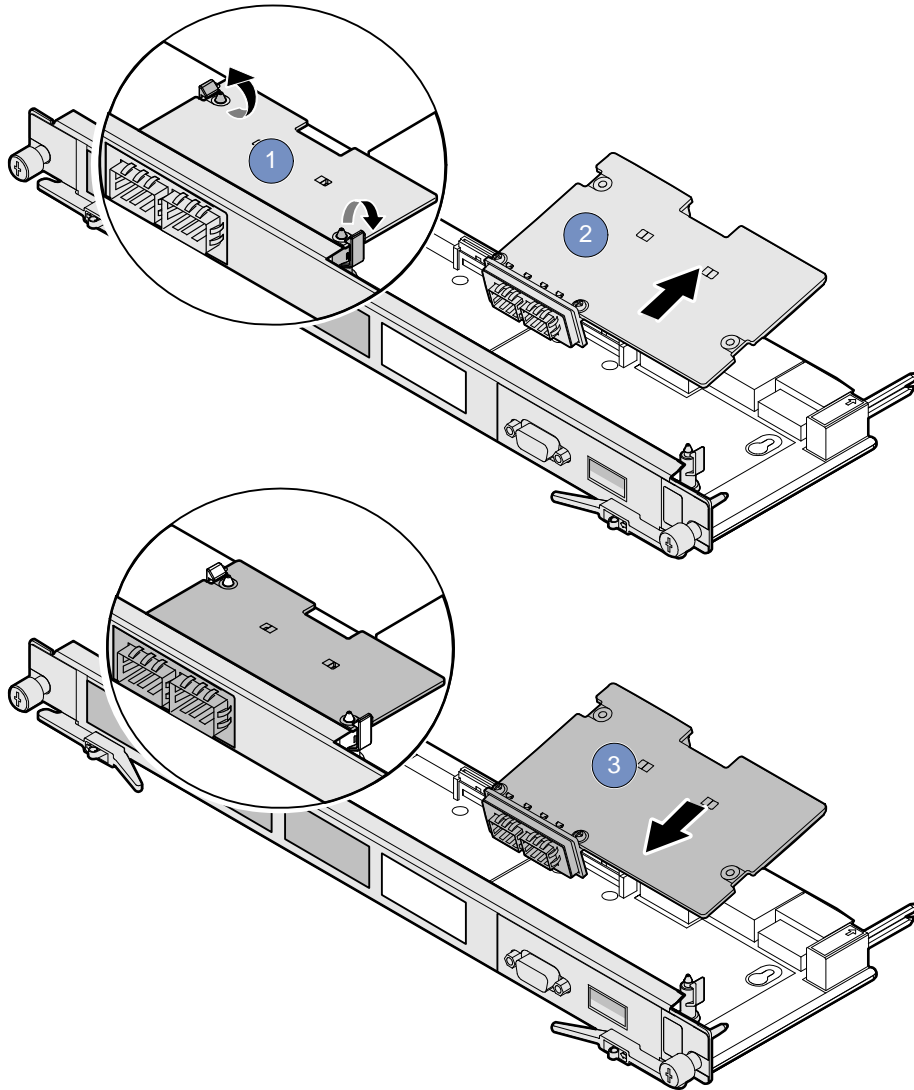
2.6.4.3 Replacing the FC Daughter Card

To replace the FC daughter card, proceed as follows.

1. Wear the ESD-preventive wrist strap. For more information refer, *Wearing the ESD-Preventive Wrist Strap*.
2. Remove the RTM-ATCA-7150 whose FC daughter card is to be replaced. For more information refer, *Removing RTM-ATCA-7150*.
3. As shown in step 1 of the figure below, open the plastic latches fastening the FC daughter card.
4. Exert even force upwards until the daughter card connector is removed from the connector on RTM-ATCA-7150. As shown in step 2 of the figure below, remove the daughter card by facing the daughter card at an angle of 45° to the RTM.
5. Place the removed FC daughter card in an antistatic package.

6. Take the new FC daughter card out of the antistatic package.

Figure 2-7 Replacing the FC Daughter Card.



7. Insert the FC daughter card in RTM-ATCA-7150 by facing the daughter card at an angle of 45° to the RTM. Align the daughter card connector with the connector on RTM-ATCA-7150, and the daughter card positioning holes with the plastic supports on RTM-ATCA-7150. Exert even power downwards until the daughter card connector is fully inserted into the connector on RTM-ATCA-7150 and the daughter card is fastened by the plastic latches. See step 3 in the figure above.
8. Install RTM-ATCA-7150 whose FC daughter card is replaced. For more information refer, *Installing RTM-ATCA-7150*.

After replacement, check if RTM-ATCA-7150 can be powered on and work normally. Use the optical fibre to connect RTM-ATCA-7150 to the external storage system. Check if RTM-ATCA-7150 can transmit data normally and monitor whether the FC status indicator is normal.

2.7 Installing and Removing the RTM-ATCA-7150

2.7.1 Installing RTM-ATCA-7150

NOTICE

Product Damage

You can install RTM-ATCA-7150 into a system if the front blade is already installed or if it is not installed. In case the front blade is already installed, its payload has to be powered down first.

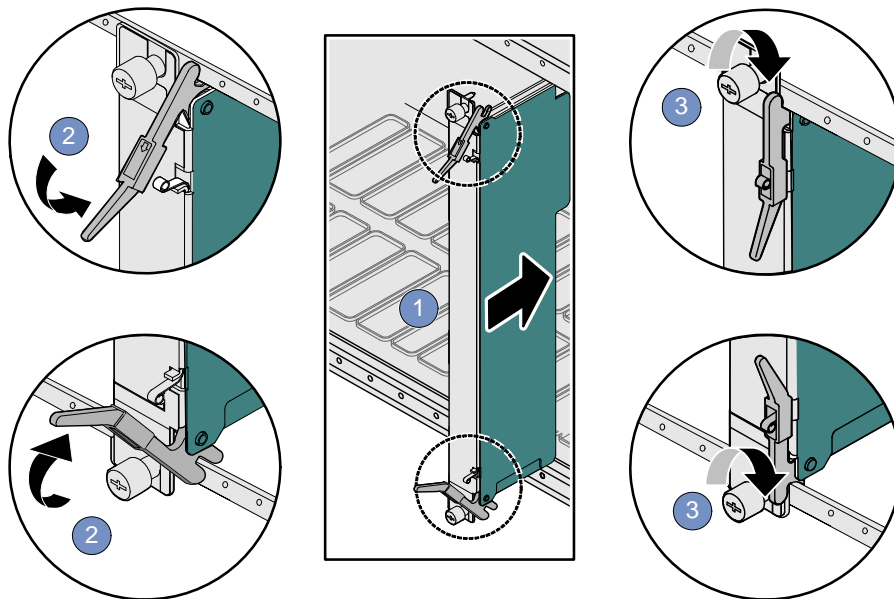
Installation Procedure with Installed Front Blade

The following procedure describes the installation of RTM-ATCA-7150. It assumes that your system is powered on. If your system is powered off, you can disregard the blue LED and thus skip the respective step. In this case it is a purely mechanical installation. The same applies to an installation without an installed front blade. In this case disregard the LEDs and skip the respective step.

1. Wear the ESD-preventive wrist strap. For more information refer, *Wearing the ESD-Preventive Wrist Strap*.
2. Fully open the ejector handles of the front blade.
3. Take RTM-ATCA-7150 out of the antistatic package.
4. Fully open the upper and lower ejector handles of the RTM.

- As shown in step 1 of the figure below, align the upper and lower sides of RTM-ATCA-7150 with the guide rails (the edges of the slot). Slide RTM-ATCA-7150 along the guide rails until the positioning pins of RTM-ATCA-7150 are inserted in the positioning holes in the shelf. The LEDs; OOS LED, Blue LED, and healthy LED are on.

Figure 2-8 Installing RTM-ATCA-7150



- As shown in step 2 of the figure above, make sure that the ejector handles are fastened to the beam. Close the upper and lower ejector handles inwards until the inner sides of the ejector handles are attached to the face plate.
- As shown in step 3 of the figure above, use the screwdriver to fasten the captive screws clockwise to fix RTM-ATCA-7150. The LEDs of the RTM are off now.
- Close the handles of the front blades

2.7.2 Removing RTM-ATCA-7150

NOTICE

Product Damage

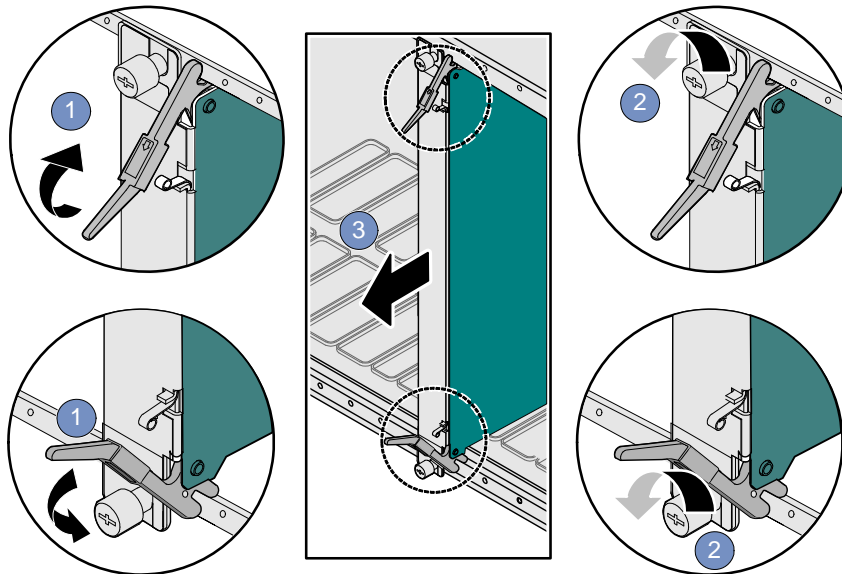
You should power off the front blade before removing RTM-ATCA-7150.

To remove RTM-ATCA-7150, proceed as follows:

1. Wear the ESD-preventive wrist strap. For more information refer, *Wearing the ESD-Preventive Wrist Strap*.
2. The OOS, blue, and the healthy LEDs of the RTM are on. Open the ejector handles of the front blade to power it down.
3. As shown in step 2 of the figure below, use the screwdriver to unfasten the captive screws of the RTM anticlockwise.
4. As shown in step 1 of the figure below, fully open the upper and lower ejector handles.

5. As shown in step 3 of the figure below, remove RTM-ATCA-7150 along the guide rails.
6. Place RTM-ATCA-7150 in the antistatic package.

Figure 2-9 Removing RTM-ATCA-7150



2.8 Connecting External Cables

After RTM-ATCA-7150 is installed in the shelf, you can connect the keyboard, video, and mouse (KVM) cables.

If RTM-ATCA-7150 is configured with the GE daughter card and FC daughter card, it provides the external GE network ports and external FC interfaces. Network cables and optical fibers can be connected to RTM-ATCA-7150. You can choose to use one or more daughter cards according to actual applications.

NOTICE

Cable Damage

- There is a back cable trough at the back side of the shelf. You need to arrange and identify all cables and then bind and fasten them in the back cable through after connecting them.
- If you use excessive force when installing cables, the cables may be damaged.
- Do not exert too much force when you insert or remove the cables. Do not twist or tear the cables in any condition.

2.8.1 Connecting KVM Cables

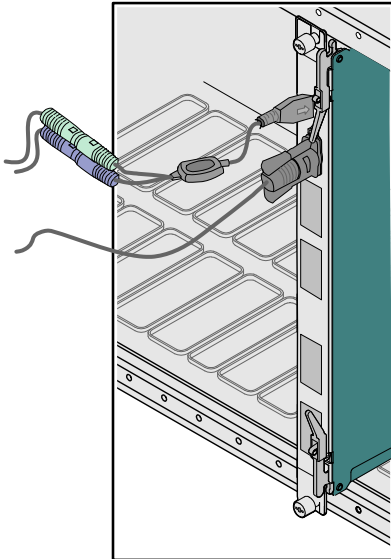
The figure below shows the method of connecting the Keyboard, Video, Mouse (KVM) cables to RTM-ATCA-7150. Please refer to your local Emerson sales representative to obtain the cable.

NOTICE

Product Damage

You have to use matching interfaces for the KVM cables.
Use a PS/2-USB converter when connecting the KVM cables.

Figure 2-10 Connecting the KVM Cables to RTM-ATCA-7150



2.8.2 Connecting Network Cables

NOTICE

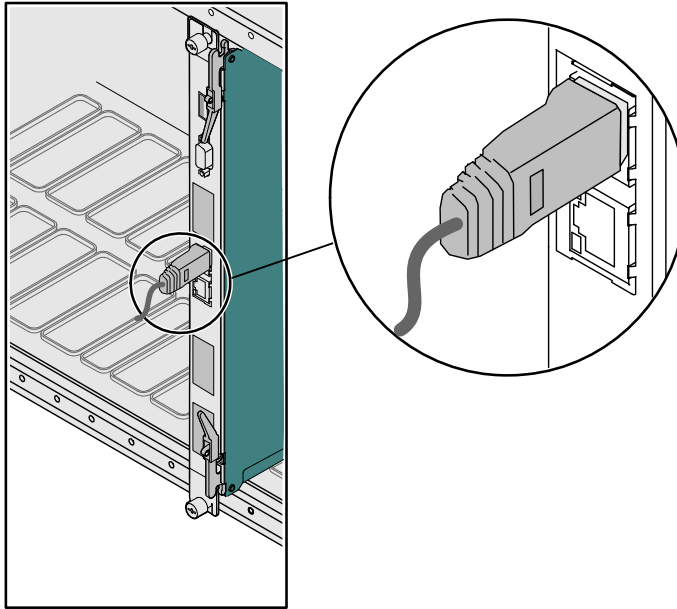
Electromagnetic Radiation

Make sure that the cable and connectors of the network cable are with shielding function and that both ends of the shielded layer of the network cable are grounded. It is recommended that the network cable is grounded through the metal cover of the network port connector.

When RTM-ATCA-7150 is configured with the GE daughter card, it provides two external Ethernet interfaces with 10/100/1000M Base-T auto-negotiation. Network cables are used to connect RTM-ATCA-7150 to the external network. Please refer to your local Emerson sales representative to obtain the cable.

The figure below shows the method of connecting the network cables to RTM-ATCA-7150.

Figure 2-11 Connecting the Network Cables to RTM-ATCA-7150

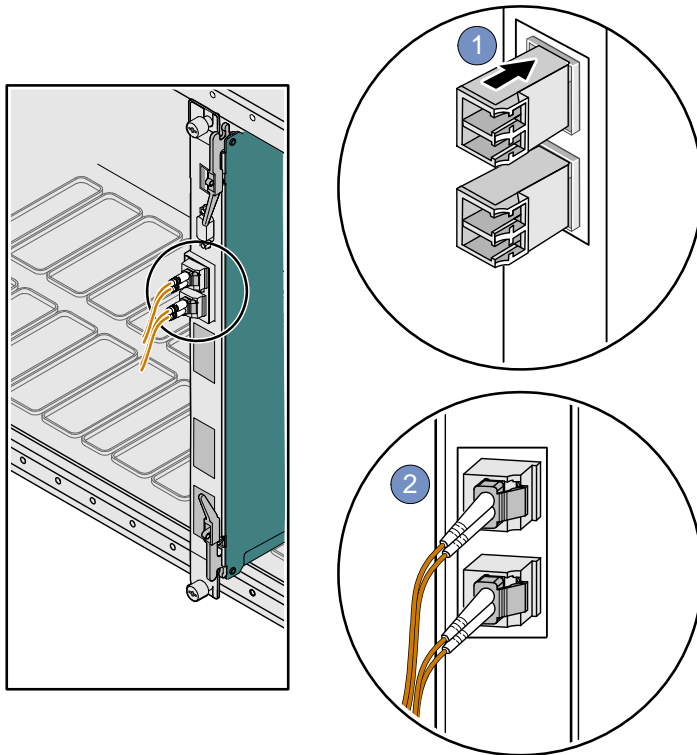


2.8.3 Connecting Optical Fibers

When RTM-ATCA-7150 is configured with the FC daughter card, it provides two external 2G FC interfaces. Optical fibers are used to connect RTM-ATCA-7150 to the external Storage Area Network (SAN) storage system. Please refer to your local Emerson sales representative to obtain the cable.

As shown in steps 1 and 2 in the figure below, insert the optical module in the FC interface and then insert the optical fibers in the optical module.

Figure 2-12 Connecting the Optical Fibers to RTM-ATCA-7150



3.1 Overview

This chapter describes:

- Unpacking and inspecting the blade
- Environmental and power requirements
- Precautions during the operation
- Checking the installation environment
- Installing accessories
- Installation and removal procedures
- Ejector handles

3.2 Unpacking and Inspecting the Blade

NOTICE

Damage of Circuits

Electrostatic discharge and incorrect installation and removal of the blade can damage circuits or shorten their life.

Before touching the blade or electronic components, make sure that you are working in an ESD-safe environment.

Shipment Inspection

To inspect the shipment, perform the following steps.

1. Verify that you have received all items of your shipment:
 - Printed "Getting Started" guide
 - ATCA-7150 blade
 - Any optional items ordered
2. Check for damage and report any damage or differences to the customer service.

3. Remove the desiccant bag shipped together with the blade and dispose of it according to your country's legislation.



The blade is thoroughly inspected before shipment. If any damage occurred during transportation or any items are missing, please contact our customer's service immediately.

Unpacking the Blade

To unpack and check the ATCA-7150 suite, proceed as follows:

1. Wear the ESD-preventive wrist strap.
For more details, see [Wearing the ESD-Preventive Wrist Strap on page 75](#).
2. Lay the packing carton according to the arrow direction on the cover.
3. Cut the tape to open the packing carton.
4. According to [Table 3-1](#), check that the components are complete and in good condition, without defects such as oxidation, chemical corrosion, missing component, or transportation damage.

Table 3-1 List of Packing Items

SN	Description
1	Packing materials, such as packing carton, plastic package, and foam
2	Documentation bag, containing documents shipped with the product
3	ATCa-7150, which can be used with an RTM-ATCA-7150
4	RTM-ATCA-7150, which must be used with an ATCA-7150
5	Desiccant bag



- The actual items in the packing carton are decided by the contract.
- If you do not order an RTM of the server blade, all functions provided by the RTM are not available.

3.3 Environmental and Power Requirements

The following environmental and power requirements are applicable to the blade.

3.3.1 Environmental Requirements

Table 3-2 Environmental Requirements

Requirement	Operating	Non-Operating
Temperature	+5°C (41°F) to +40°C (105°F) (normal operation) according to NEBS Standard GR-63-CORE -5°C to +55°C (exceptional operation) according to NEBS Standard GR-63-CORE	The SAS drives can meet this max temperature range of non-operating. -40°C (-40°F) to +70°C (158°F).
Temp. Change	+/- 0.25°C/min according to NEBS Standard GR-63-CORE	+/- 0.25°C/min
Rel. Humidity	5% to 85% non-condensing according to Emerson Network Power-internal environmental requirements	5% to 95% non-condensing according to Emerson Network Power-internal environmental requirements
Altitude	<=3000 m	
Maximum weight	4.0 kg	
Length x width x height	322.3 mm x 280 mm x 29 mm	
Vibration	0.1g from 5 to 100 Hz and back to 5 Hz at a rate of 0.1 octave/minute	5-20 Hz at 0.01 g ² /Hz 20-200 Hz at -3.0 dB/octave Random 5-20 Hz at 1 m ² /Sec ³ Random 20-200 Hz at -3 m/Sec ²
Shock	Half-sine, 11 m/Sec, 30mSec/sec ²	Blade level packaging Half-sine, 6 mSec at 180 m/Sec ²

Table 3-2 Environmental Requirements (continued)

Requirement	Operating	Non-Operating
Free Fall		1,200 mm (Packaged) /all edges and corners 1.0m (Packaged) per ETSI 300 019-2-2 (Blade level packaging) 25 mm (unpackaged) per GR-63-CORE

3.3.2 Power Requirements

Make sure that the blade is used in an AdvancedTCA shelf connected to -48VDC up to -60VDC, according to Telecommunication Network Voltage (TNV-2). A TNV-2 circuit is a circuit whose normal operating voltages exceed the limits for a safety-extra-low-voltage (SELV) under normal operating conditions, and which is not subject to overvoltages from telecommunication networks.


Table 3-3 lists the power requirements for the ATCA-7150.

Table 3-3 Power Requirements

Requirement	Operating
Rated Voltage	-48VDC to -60VDC US and Canada: -48VDC
Operating Voltage	-39.0VDC to -72VDC US and Canada: -39.0 to -60VDC
Input Current	3.75A at 48V
Power Dissipation	180W (max) 140W (min)

The blade provides two independent power inputs according to the AdvancedTCA specification.

3.4 Precautions

	⚠ CAUTION
	<p>Electric Shock There is current in the power cords and communication cables. Touching the connectors of the power cords and communication cables may cause electric shock. Do not touch the connectors of power cords and communication cables.</p>

NOTICE
<p>Electrostatic Discharge Do not touch the circuit board with bare hands. The static electricity of the human body may damage the electrostatic sensitive devices (ESSDs) on the circuit board. Make sure that you wear an electrostatic discharge (ESD)-preventive wrist strap or antistatic glove to prevent the static electricity from hurting you or damaging the device. Keep your personal objects such as your clothes away from the ATCA-7150 suite. To prevent the static electricity from damaging the device, it is recommended to wear antistatic clothes.</p> <p>Pin Damage If the blade is not fully aligned with the interface in the backplane, too much force may twist the pins on the blade or backplane. Do not exert too much force when you insert the blade.</p>

Note the following points at the time of installing RTM-ATCA-7150:

- If an RTM is planned to be used, you must install the RTM in the slot before installing the ATCA-7150 in the paired slot. If the ATCA-7150 is installed first and shelf power is turned on the RTM must not be installed in the paired slot.
- To take the ATCA-7150 suite, hold the captive screw on the top of the face plate with one hand and the lower edge of the blade with the other hand. Do not touch the components of the blade.

3.4.1 ESD Prevention

Static electricity may hurt you or damage the device. To minimize the damage, pay attention to the following points:

- Before you operate the device, wear the ESD-preventive wrist strap. Both terminals of the ESD-preventive wrist strap must contact well. One terminal touches your bare skin, and the other is inserted in the jack at the front or back side of the shelf. For details on how to wear the ESD-preventive wrist strap, see [Wearing the ESD-Preventive Wrist Strap on page 75](#).
- Avoid moving as much as possible. Movement gathers static electricity around you.
- Do not touch the solder point, pin, or bare circuit.
- Do not leave the device in the place where others can operate it.
- Install the device at once after you take it out of the antistatic package. If you need to lay down the device, place it back in the antistatic package. Do not lay the device on the shelf or cabinet.
- Monitor the temperature and humidity of the equipment room. Warm air decreases the humidity but increases the static electricity in the room.

NOTICE

Damage of Circuits

Electrostatic discharge and incorrect module installation and removal can damage circuits or shorten their life. Before touching the module or electronic components, make sure that you are working in an ESD-safe environment.

3.5 Checking the Installation Environment

Table 3-4 lists the environment for installing the ATCA-7150 suite.

Table 3-4 Environment for Installing the ATCA-7150 Suite

Item	Description
Cabinet	Cabinet that complies with the IEC297 standard Note: Leave enough space around the cabinet. Nothing blocks the fans and air conditioner to ensure airflow and heat dissipation.
Shelf	Shelf of the system Note: Consider heat dissipation when you choose slots to install blades. If the shelf is not fully configured, install the blades in scattered slots.

3.5.1 Wearing the ESD-Preventive Wrist Strap

NOTICE

Product Damage

Electrostatic discharge can damage circuits or shorten their life.

The ESD-preventive wrist strap prevents only the static electricity on your body from damaging the blade. To prevent the static electricity on your clothes, it is recommended to wear the antistatic clothes. Additionally, you have to make sure that the cabinet and shelf are properly grounded - for details, refer to the respective system documentation.

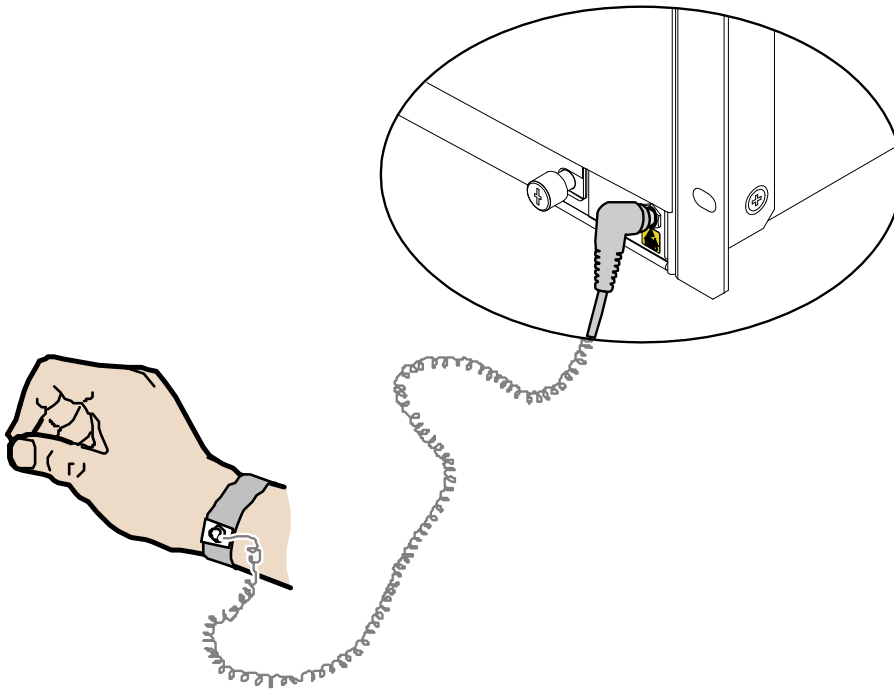


The cable of an ESD-preventive wrist strap is limited. In this case, before you wear the ESD-preventive wrist strap, place the device within 0.5 m away from the shelf.

To wear the ESD-preventive wrist strap, proceed as follows:

1. Wrap the ESD-preventive wrist strap around your wrist, as shown in [Figure 3-1](#).
2. Fasten the latch. Make sure that the ESD-preventive wrist strap well touches your bare wrist.
3. Insert the grounding terminal of the ESD-preventive wrist strap in the jack of the cabinet or shelf.

Figure 3-1 Wearing the ESD-Preventive Wrist Strap



3.5.2 Removing Blank Filler Blades

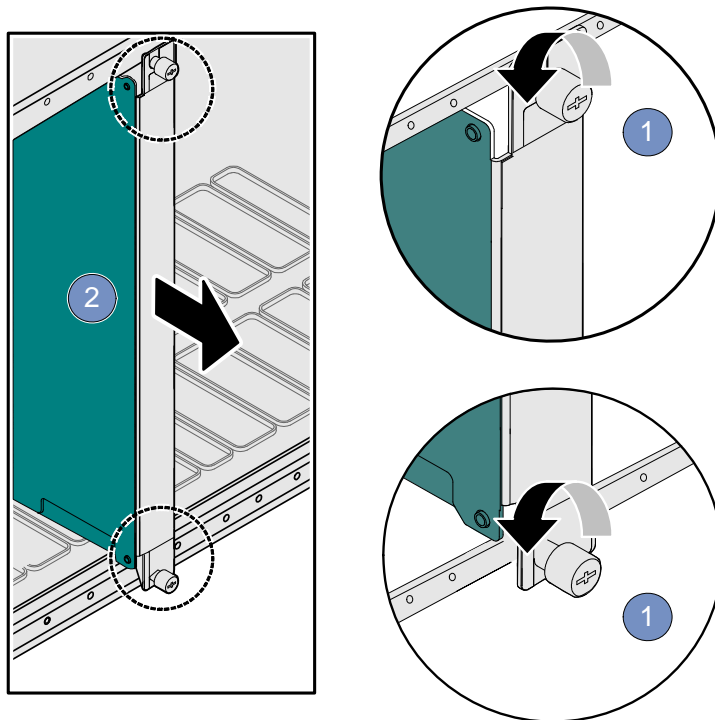


- After you remove a blank filler blade, store it in the equipment room or a damp-proof and dust-proof place.
- After you remove a blade from the shelf, install a blank filler blade in vacant slot. Otherwise, the functions such as ventilation, heat dissipation, electromagnetic shield, and dust proof may be affected.
- For a newly-delivered shelf, you can remove all blank filler blades and then install blades in all slots when the shelf is not powered on.
- If a shelf is powered on, you can remove a blank filler blade and then install a blade. In this way, install multiple blades one by one.

Before you install the ATCA-7150 suite, remove blank filler blades from installation slots as follows:


1. Use a screwdriver to anticlockwise loosen the two captive screws on a blank filler blade, as shown in [Figure 3-2](#).
2. Pull the blank filler blade out of the slot, as shown in [Figure 3-2](#).

Figure 3-2 Removing the Blank filler blade



3.6 Installing Blade Accessories

3.6.1 Precautions

	⚠ CAUTION
	<p>Electric Shock There is current in the power cords and communication cables. Touching the connectors of the power cords and communication cables may cause electric shock. Do not touch the connectors of power cords and communication cables.</p>

When you install or replace components, pay attention to the following points:

- Wear the ESD-preventive wrist strap to prevent the static electricity from damaging the device.
- Keep the area where the components reside clean and keep the components away from the heat generating devices, such as radiator.
- Ensure that your sleeves are tightened or rolled up above the elbow. For safety purpose, it is not recommended to wear jewelry, watch, glasses with metal frame, or clothes with metal buttons.
- Do not exert too much force, or insert or remove the components forcibly. Avoid damage to the components or plug-ins.

3.6.2 Optional Components Supported by the ATCA-7150

NOTICE
<p>Only those who are certificated or authorized by Emerson Network Power can replace or change the components.</p>

Table 3-5 lists the optional components supported by the ATCA-7150.

Table 3-5 Optional Components Supported by the ATCA-7150 Suite

Blade	Supported Component
ATCA-7150 and RTM-ATCA-7150	DIMM
	Hard disk
	Daughter cards on the RTM



For more information on the daughter cards, refer to RTM-ATCA-7150 Installation and Use Manual, MES-RTM-7150-FC Installation Information, and MES-RTM-7150-GE Installation Information.

3.6.3 Preparations

Before you install or replace the component, make the following preparations:

- Confirming the feasibility of the operation
 - There are available spare parts of the component to be installed or replaced in the equipment warehouse. When the available spare parts are lacking, contact Emerson Network Power for help in time. For details on how to get help from Emerson Network Power, see [Contacting Emerson Network Power for Technical Support on page 100](#).
 - Make sure that the new component is in good condition, without defects such as oxidation, chemical corrosion, missing component, or transportation damage.
 - By reading this document, you are familiar with how to install and replace the component and master the skills required by the operation.
- Checking the environment

Make sure that the shelf, power supply, temperature, and humidity meet the operating requirement for the blades and components. For details, refer to the respective system documentation.

- Preparing spare parts and tools
 - Prepare the component to be installed or replaced.
When you hold or transport the component, use the special antistatic package. Also, you need to tidy, record, and repair the component during routine maintenance.
 - Prepare the cross screwdriver, screws, plastic supports, cooling gel, and ESD-preventive wrist strap.
The supplier provides a list of tools and negotiates with to decide the tool provider.
- Confirming installation or changing position
Confirm the positions of the cabinet, the shelf, and the slot where the ATCA-7150 is installed. Then, stick a label on the face plate of the ATCA-7150 to avoid wrong operation.
- Others
If a serious problem occurs and cannot be solved when you install or replace the component, contact Emerson Network Power for technical support. For details on contact methods, see [Contacting Emerson Network Power for Technical Support on page 100](#).

3.6.4 DIMM

When you install or replace the DIMM, pay attention to the following points:

- The ATCA-7150 provides four DIMM interfaces and supports the DIMM with a capacity of 512 MB, 1 GB, 2 GB or 4 GB.
- The DIMMs must have the same size, frequency, type, and technology, physical design and manufacturer.
- DIMMs must be of single or dual rank type. Quad rank types are not supported.
- If the DIMMs are not fully configured, you need to install the required DIMMs in the related interfaces.
 - If one DIMM is configured, install it in DIMM slot 0.
 - If two DIMMs are configured, install them in DIMM slots 0 and 1.
 - Configuring three DIMMs is not supported.

Figure 3-3 shows the positions of the DIMM interfaces on the ATCA-7150.

Figure 3-3 Positions of the DIMM Interfaces

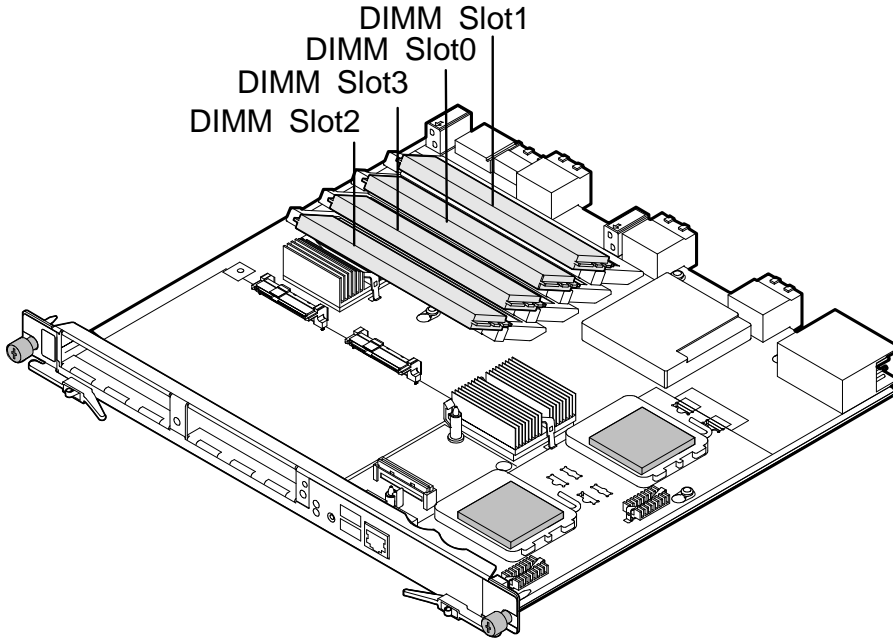


Table 3-6 DIMM Configuration on the ATCA-7150

Number of DIMMs	Installation Positions			
	CH0/J25	CH1/J39	CH2/J27	CH3/J28
1	x			
2	x	x		
4	x	x	x	x

3.6.4.1 Installing the DIMM

To install the DIMM, proceed as follows:

1. Wear the ESD-preventive wrist strap.
For details, see *Wearing the ESD-Preventive Wrist Strap* on page 75.

2. Lay the ATCA-7150 where the DIMM is to be installed on the antistatic desktop.
3. Take the DIMM out of the antistatic package.
4. Make sure that two interface fixing clips are fully open. Adjust the DIMM to align it with the DIMM interface.

NOTICE

Product Damage

Operate the fixing clips slightly to avoid breaking them or damaging the DIMM interface.

5. Insert the DIMM in the interface along the guide rails, as shown in [Figure 3-4](#).

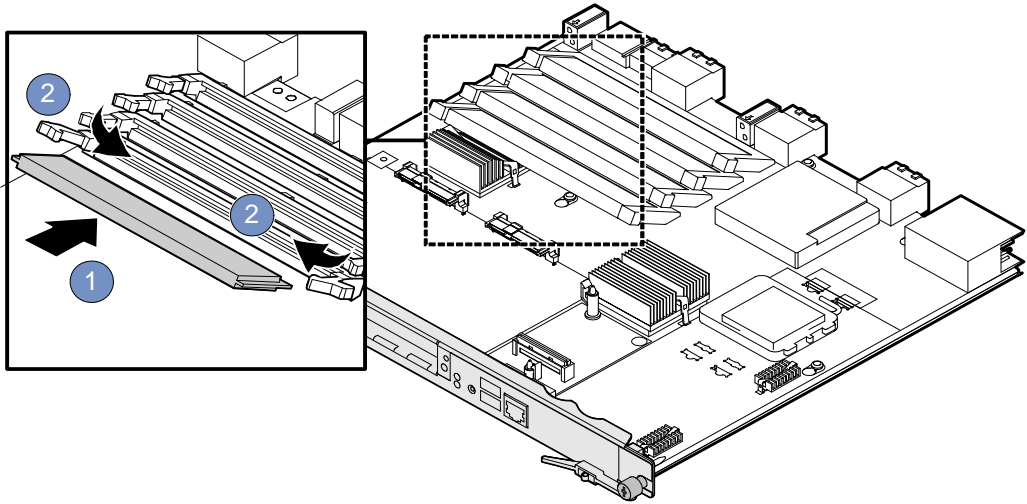


If there is a gap between the DIMM and the fixing clips, the DIMM is not installed properly. In this case, open the fixing clips and remove the DIMM. Then, insert the DIMM again.

6. Make sure that the fixing clips are fastened or closed firmly as shown in [Figure 3-4](#).

7. Insert the ATCA-7150 with the DIMM installed in the shelf.
For details, see [Installing the ATCA-7150 in a Powered Shelf on page 91](#).

Figure 3-4 Installing the DIMM



You can install the DIMMs in other DIMM interfaces in the same way.

After installation, insert the ATCA-7150 in the shelf and power on the ATCA-7150. Check whether the OS can be loaded properly. If it can be, in the OS, check whether the displayed memory capacity is consistent with the actual one.

3.6.4.2 Replacing the DIMM

To replace the DIMM, proceed as follows:

1. Wear the ESD-preventive wrist strap.
For details, see [Wearing the ESD-Preventive Wrist Strap on page 75](#).
2. Remove the ATCA-7150 whose DIMM is to be replaced.

For details, see [Removing the ATCA-7150 on page 95](#).

NOTICE

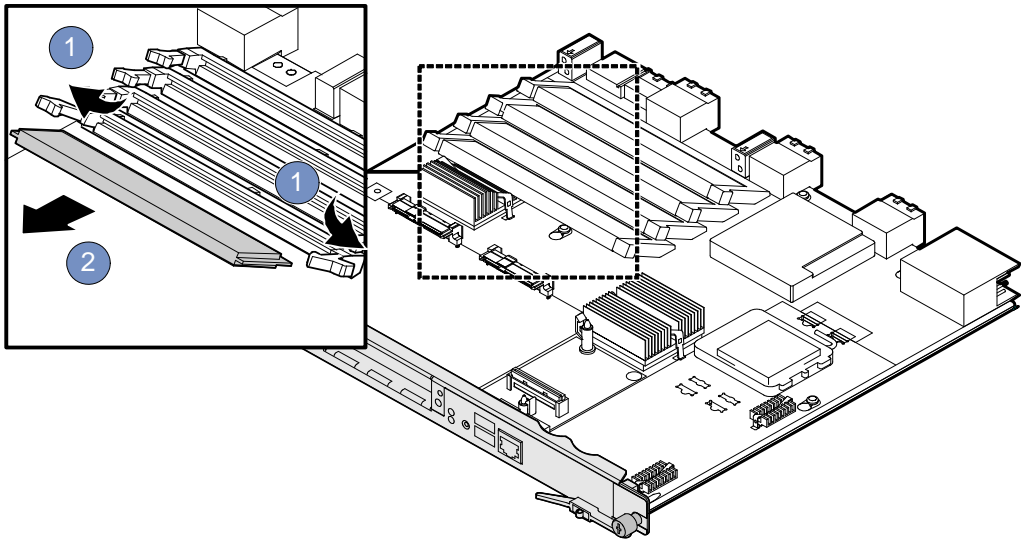
Product Damage

- To avoid breaking them or damaging the DIMM interface, do not exert too much power to operate the fixing clips.
- If you open the two fixing clips of the DIMM at the same time, the DIMM bounces from the interface. Operate the fixing clips carefully to avoid damaging the DIMM.

3. Open one fixing clip of the DIMM carefully until the DIMM rises from the interface. Hold the top edge of the DIMM and open the other fixing clip carefully until the DIMM is removed from the interface, as shown in [Figure 3-5](#).
4. Take the DIMM out of the interface carefully, as shown in [Figure 3-5](#).
5. Place the faulty DIMM in the antistatic package.
6. Take the new DIMM out of the antistatic package.
7. Install the new DIMM.
For details, see [Installing the DIMM on page 82](#).

8. Install the ATCA-7150 with the DIMM replaced.
For details, see *Installing the ATCA-7150 in a Powered Shelf on page 91*.

Figure 3-5 Removing the DIMM



After replacement, check whether the OS can be loaded properly. If it can be, in the OS, check whether the displayed memory capacity is consistent with the actual one.

3.6.5 Hard Disk

This section describes how to install and replace the hard disk on the ATCA-7150.

3.6.5.1 Installing the Hard Disk

For more information on the installation of the hard disk, refer to the HDD Installation Sheet.

To install the hard disk, proceed as follows:

1. Wear the ESD-preventive wrist strap.
For details, see *Wearing the ESD-Preventive Wrist Strap on page 75*.
2. Take the hard disk to be installed out of the antistatic package.

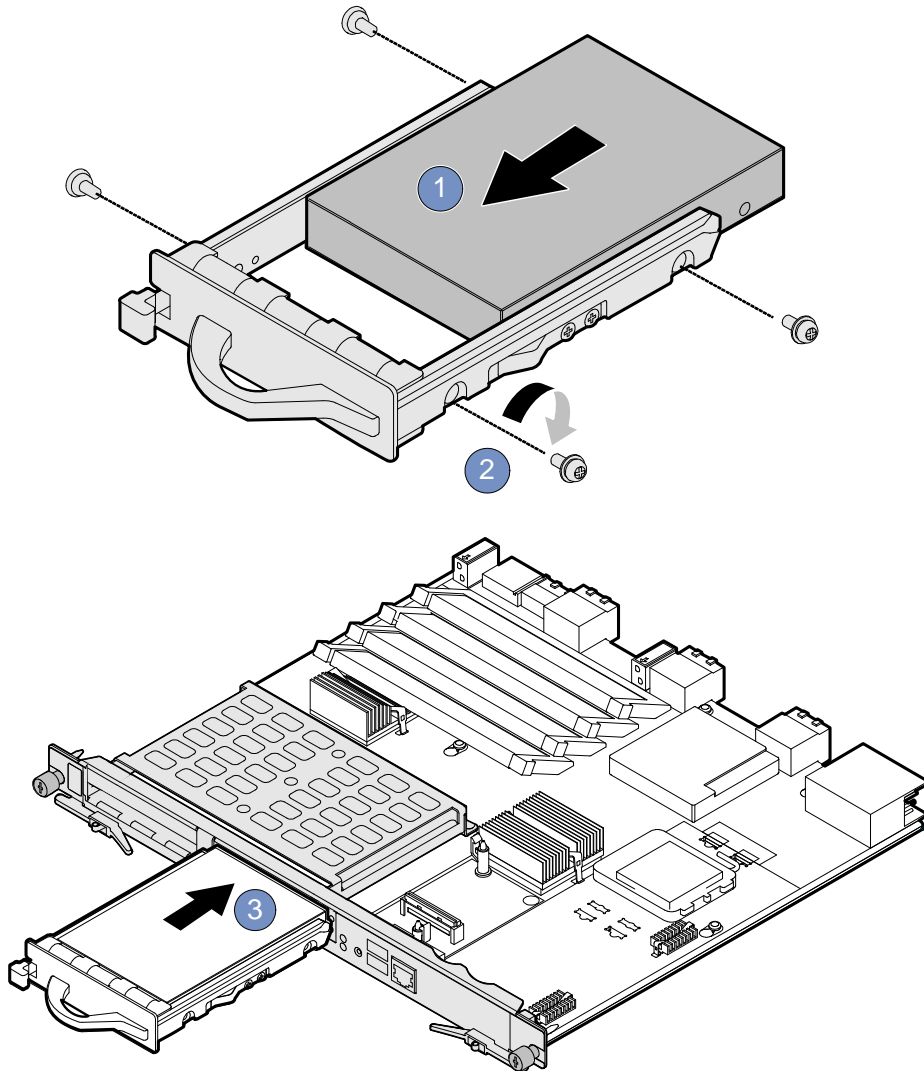
3. Exert even force to push the hard disk smoothly in the hard disk holder. Align the screw holes at the sides of the hard disk with those at the sides of the holder, as shown in [Figure 3-6](#).
4. Use the screwdriver to fasten the four screws clockwise to fix the hard disk, as shown in [Figure 3-6](#).
5. Exert even force to push the hard disk in the fixing bracket on the ATCA-7150, as shown in [Figure 3-6](#).
6. Insert the ATCA-7150 with the hard disk installed in the shelf.
For details, see [Installing the ATCA-7150 in a Powered Shelf on page 91](#).



You can install the other hard disk in the same way.

After installation, check whether the ATCA-7150 can be powered on and work normally and whether the data in the hard disk can be read and written normally.

Figure 3-6 Installing the Hard Disk



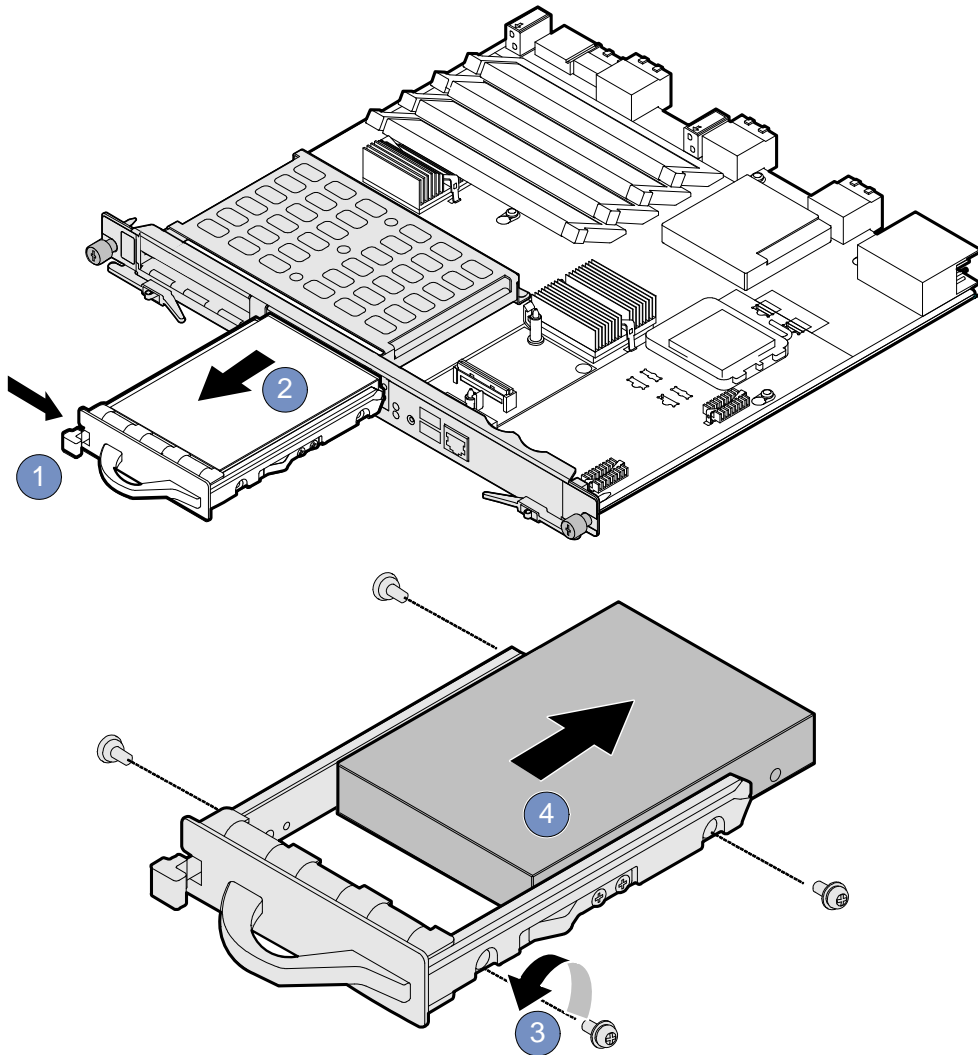
3.6.5.2 Replacing the Hard Disk

To replace the hard disk, proceed as follows:

1. Wear the ESD-preventive wrist strap.
For details, see *Wearing the ESD-Preventive Wrist Strap* on page 75.
2. Remove the ATCA-7150 whose hard disk is to be replaced.
For details, see *Removing the ATCA-7150* on page 95.
3. Remove the finger on the hard disk holder in a direction as shown in [Figure 3-7](#) to unlock the hard disk.
4. Exert even force to pull the hard disk holder from the fixing bracket, as shown in [Figure 3-7](#).
5. Unfasten the four screws used to fasten the hard disk anticlockwise, as shown in [Figure 3-7](#).
6. Exert even force to pull the hard disk from the holder, as shown in [Figure 3-7](#).
7. Place the faulty hard disk in the antistatic package.
8. Take the new hard disk out of the antistatic package.
9. Install the new hard disk.
For details, see *Installing the Hard Disk* on page 86.
10. Install the ATCA-7150 with the hard disk replaced.
For details, see *Installing the ATCA-7150 in a Powered Shelf* on page 91.

After replacement, check whether the ATCA-7150 can be powered on and work normally and whether the data in the hard disk can be read and written normally.

Figure 3-7 Removing the Hard Disk



3.7 Installing and Removing the Blade

3.7.1 Installation

RTM-ATCA-7150 must be installed before the ATCA-7150 to avoid product damage. For information on how to install the RTM-ATCA-7150, refer to [Chapter 2, Installation of the RTM-ATCA-7150](#), on page 35

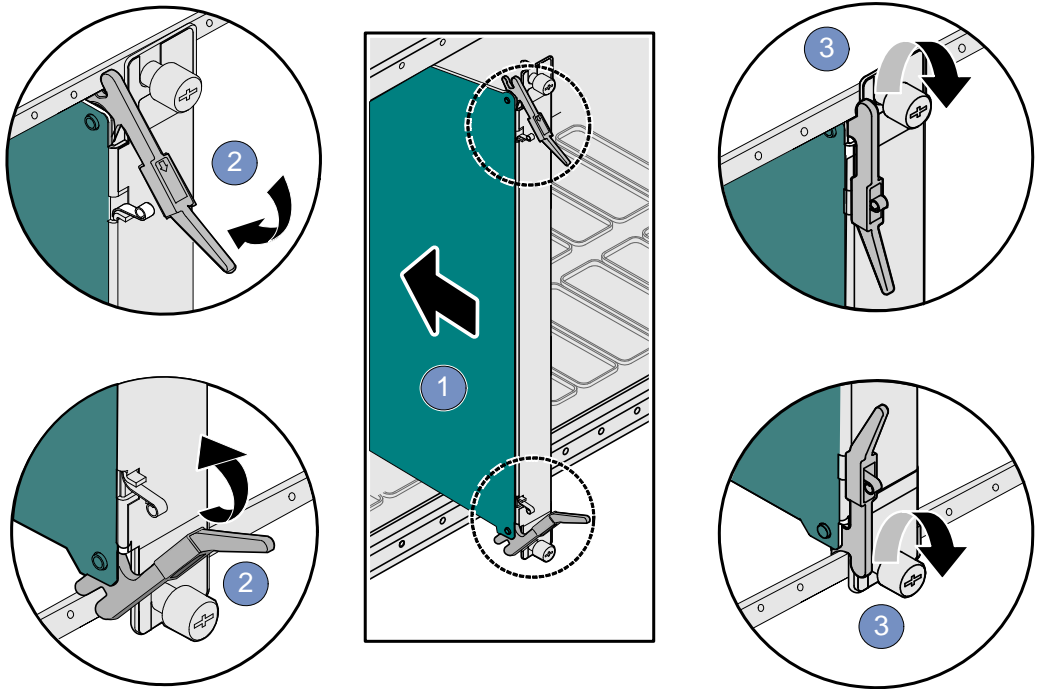
3.7.1.1 Installing the ATCA-7150 in a Powered Shelf

The following procedure describes the installation of the blade. It assumes that your system is powered and if applicable the RTM is installed. If your system is unpowered, you can disregard the blue LED and thus skip the respective step. In this case it is a purely mechanical installation.

1. Wear the ESD-preventive wrist strap.
For details, see [Wearing the ESD-Preventive Wrist Strap on page 75](#)
2. Take the ATCA-7150 out of the antistatic package.
3. Fully open the upper and lower ejector handles.
4. Slide the ATCA-7150 along the guide rails until the positioning pins of the ATCA-7150 are inserted in the positioning holes in the shelf, as shown in [Figure 3-8](#).
5. Make sure that the upper and lower ejector handles are attached to the beam properly. Close the upper and lower ejector handles until the inner sides of the ejector handles are attached to the face plate, as shown in [Figure 3-8](#). After closing the handles, the blue LED, OOS and HEALTHY LEDs blink. When payload is powered on, the blue LED is continuously illuminated, and the OOS and HEALTHY LEDs are out.

6. Use the screwdriver to clockwise fasten the screws to fix the ATCA-7150, as shown in Figure 3-8.
7. Fully open the ejector handles and the ATCA-7150 is ready for power-on. Before you power on the ATCA-7150, connect the required external cables and check that the ATCA-7150 is installed properly.

Figure 3-8 Installing the ATCA-7150



3.7.1.2 Checking the Installation

After you install the RTM of the server blade and the ATCA-7150, and connect and bind cables, check whether:

- The ATCA-7150 and RTM are installed in the paired slots.
- The upper and lower ejector handles of the RTM are fully closed.

- The cables are properly connected.
- The cables are well bound.

3.7.1.3 Power-On

NOTICE

The RTM of the server blade is powered by the ATCA-7150 in the slot paired with the RTM slot. The RTM of the server blade does not support hot swap. Therefore, the RTM must be installed in the slot before the ATCA-7150 is installed in the paired slot.

3.7.1.3.1 Checks Before Power-On

Before power-on, you need to confirm that:

- The RTM of the server blade and SMM are installed properly.
- The shelf and SMM are powered on properly.
- The required external cables are connected.
- The upper and lower ejector handles of the ATCA-7150 are opened.

3.7.1.3.2 Procedure

To power on the ATCA-7150, proceed as follows:

1. Wear the ESD-preventive wrist strap.
For details, see [Wearing the ESD-Preventive Wrist Strap on page 75](#).

2. Close the upper and lower ejector handles.
The HOTSWAP LED blinks at the short blink rate. The OOS and HEALTHY LEDs blink for 10 times at the same time. When the OOS and HOTSWAP LEDs are off and the HEALTHY LED is on (green), the ATCA-7150 is powered on properly.



During power-on, if the HEALTHY LED blinks (red), an alarm occurs to the ATCA-7150.

3.7.2 Removal

NOTICE

- Before you remove an ATCA-7150 or RTM of the server blade, prepare packing materials, such as an antistatic package.
- Before you remove an ATCA-7150 or RTM of the server blade, power off the ATCA-7150. For details on how to power off the ATCA-7150, see [Power Off on page 94](#).

3.7.2.1 Power Off

NOTICE

The RTM of the server blade is powered by the ATCA-7150 in the slot paired with the RTM slot. The RTM of the server blade does not support hot swap. You can remove the RTM only when the ATCA-7150 is powered off and removed from the slot.

3.7.2.1.1 Checks Before Power-Off

Before power-off, you need to confirm that:

- Data has been saved on the ATCA-7150.
- No application runs on the ATCA-7150.
- The ATCA-7150 has quitted the operating system (OS).

3.7.2.1.2 Procedure

To power off the ATCA-7150, proceed as follows:

1. Wear the ESD-preventive wrist strap.
For details, see *Wearing the ESD-Preventive Wrist Strap on page 75*.
2. Open the upper and lower ejector handles.
The ATCA-7150 is powered off properly when:
 - The HOTSWAP LED blinks at the short blink rate and then is on (blue).
 - The OOS LED is on (red or amber).
 - The HEALTHY LED is off.

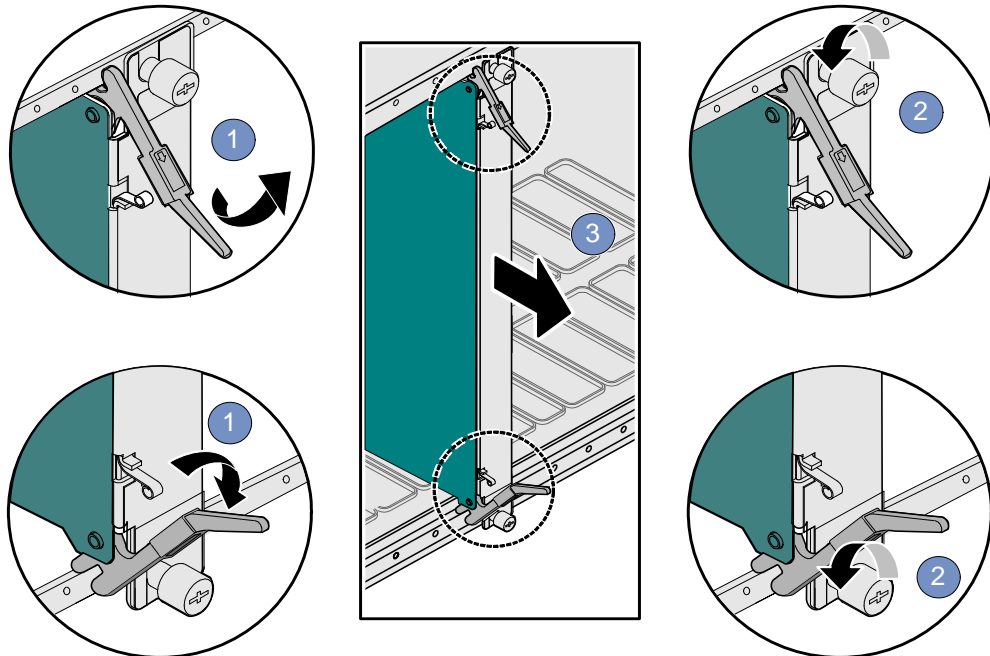
3.7.2.2 Removing the ATCA-7150

To remove the ATCA-7150, proceed as follows:

1. Wear the ESD-preventive wrist strap.
For details, see *Wearing the ESD-Preventive Wrist Strap on page 75*.
2. Open the upper and lower ejector handles to power off the ATCA-7150, as shown in [Figure 3-9](#).
For details, see *Power Off on page 94*.
3. Use the screwdriver to unfasten the captive screws anticlockwise, as shown in [Figure 3-9](#).

4. Remove the ATCA-7150 along the guide rails, as shown in [Figure 3-9](#).
5. Place the ATCA-7150 in the antistatic package.

Figure 3-9 Removing the ATCA-7150



3.8 Ejector Handles

The ATCA-7150 supports hot swap. As shown in [Figure 3-3](#), the face plate of the ATCA-7150 provides an upper and a lower ejector handles. The ejector handles help to insert, remove, power on, and power off the ATCA-7150.

Insertion and Removal

Table 3-7 describes the insertion and removal of the ATCA-7150 by using the ejector handles.

Table 3-7 Insertion and Removal of the ATCA-7150

Operation	Description
Insert the ATCA-7150	<p>The process for inserting the ATCA-7150 is as follows:</p> <ul style="list-style-type: none"> ● When the ejector handles are not closed, the HOTSWAP LED is on and the ATCA-7150 is not powered on. ● After the ejector handles are closed, the HOTSWAP LED blinks at the long blink rate and the ATCA-7150 requests for activation. ● After activation, the ATCA-7150 is powered on and the HOTSWAP LED is off.
Remove the ATCA-7150	<p>The process for removing the ATCA-7150 is as follows:</p> <ul style="list-style-type: none"> ● When you open the ejector handles, the HOTSWAP LED blinks at the short blink rate and the ATCA-7150 requests for deactivation. ● After deactivation, the ATCA-7150 is ready for power-off. ● When the HOTSWAP LED is on, the ATCA-7150 is powered off. At this time, you can remove the ATCA-7150 by holding the ejector handles.

Power-On and Power-Off

Table 3-8 describes the power-on and power-off of the ATCA-7150 by using the ejector handles.

Table 3-8 Power-On and Power-Off of the ATCA-7150

Operation	Description
Power on the ATCA-7150	Whether you close one ejector handle or both ejector handles, the ATCA-7150 can be powered on and work well.
Power off the ATCA-7150	When both ejector handles are opened, you can power off the ATCA-7150.

Troubleshooting

A.1 Overview

This chapter describes:

- Precautions
- Principles
- Resources
- LED Display Exceptions
- Power-On Startup Exceptions
- OS Exceptions

A.2 Precautions

NOTICE

Before you remove the faults of the ATCA-7150 and RTM-ATCA-7150 suite, be familiar with the Server System Safety Information shipped with the shelf.

A.3 Principles

During troubleshooting, follow the principles:

- Diagnose the outside and then the inside.
In troubleshooting, remove the outside faults, such as power interruption and the faults of the peer device.
- Diagnose the network and then the NEs (network Elements).
According to the network topology, analyze whether the network environment is normal and the interconnected device is faulty. Locate the NE to which the fault occurs.
- Diagnose the high speed part and then the low speed part.
From the alarm signal stream, the alarm of the high speed signal often causes the alarm of the low speed signal. Therefore, remove the fault of the high speed part first.

- Analyze the alarm of high level and then that of low level.
Analyze the alarm of high level, such as critical alarm or major alarm. Then, analyze the alarm of low level, such as minor alarm or warning alarm.

A.4 Resources

You can use the following resources for troubleshooting:

- LEDs
The ATCA-7150 suite provides the following LEDs:
 - Out of Service (OOS) LED
 - In Service (IS) LED
 - Attention (ATN) LED
 - Hotswap (H/S) LED
 - Hard Disk (HDD) LEDIn addition, the external GE daughter card provides network port LEDs (for two Ethernet interfaces). The external FC daughter card provides FC status LEDs (for two FC interfaces). You can monitor the LEDs to diagnose the current status of the ATCA-7150 suite. For details on the LEDs of the ATCA-7150 suite, see the LED section in the *ATCA-7150 Installation and Use* manual.
- Generating error codes and alarm signals
Error codes and alarm signals help you to further locate and remove the faults.

A.5 Contacting Emerson Network Power for Technical Support

If a problem persists after you handle it under the guidance of this document, contact the local office or Customer Service Center of Emerson Network Power to obtain timely technical support. Before you report the problem to Emerson Network Power engineer, collect the following information:

- Detailed name and address of the customer
- Contact person and telephone number
- Time when the fault occurred

- Detailed description on the fault
- Device type and software version
- Measures taken after the fault occurred and related results
- Problem level and required solution time

The contact address of Emerson Network Power is:

Emerson Network Power - Embedded Computing GmbH
Lilienthalstr. 15
85579 Neubiberg-Munich/Germany

A.6 LED Display Exceptions

A.6.1 LEDs Are Off

Description

All LEDs on the ATCA-7150 face plate are off, including the OOS, IS, ATN, H/S, and HDD LEDs. At the same time, no information is displayed on the KVM.

Solution

To solve the problem, proceed as follows:

1. Check that the ATCA-7150 is properly inserted in the shelf.
2. Check whether the -48 V DC inputs to the shelf are normal.
3. If the PEM of the ATCA-7150 is damaged, replace the ATCA-7150.
4. Contact Emerson Network Power technical support engineer to load the BMC software again.

A.6.2 In Service (IS) LED Blinks

Description

The IS LED of the ATCA-7150 blinks (red). The alarm severity varies with the blinking frequency. The higher the blinking frequency, the more serious the alarm.

The IS LED can be green or red. The working state of the ATCA-7150 decides the color of the LED.

The blinking frequency of the IS LED indicates the alarm level:

- For a minor alarm, the IS LED blinks at a frequency of 0.5 Hz.
- For a major alarm, the IS LED blinks at a frequency of 1 Hz.
- For a critical alarm, the IS LED blinks at a frequency of 4 Hz.

Solution

By using the SMM command, query the status and logs of the blade where the alarm occurs.

If an alarm occurs due to over high temperature, confirm that:

1. The temperature in the equipment room meets the operating requirements for the product.
2. The air intake vents and exhaust vents of the shelf are not blocked.
3. Blank filler blades are installed in the vacant slots of the shelf.
4. The fans are adjusted to the required speed.

A.7 Power-On Startup Exceptions

Description

After you close the upper and lower ejector handles of the ATCA-7150, the HOTSWAP LED blinks (blue) and no information is displayed on the KVM.

Solution

To solve the problem, proceed as follows:

1. Check that the ATCA-7150 is properly inserted in the shelf and that its ejector handles are fully closed.
2. Check that the pointers of the ATCA-7150 rear part that is connected to the backplane are not damaged or deformed.

3. Check the power supply of the shelf. If the power is low, the ATCA-7150 cannot be powered on through the SMM.
4. Check whether the SMM is firmly inserted in the proper position and works well. Make sure that at least one SMM is present in the shelf and works well.
5. Contact Emerson Network Power technical support engineer to check the IPMC software.

A.8 Component Exceptions

A.8.1 Component Is Unavailable

Description

The optional component that is newly installed cannot be used.

Solution

To solve the problem, proceed as follows:

1. Make sure that this optional component is suitable for the ATCA-7150 suite.
For details, see *Optional Components Supported by the ATCA-7150* on page 79.
2. Make sure that the optional component is installed properly.
3. Make sure that any installed device or cable is not loose.
4. Re-install the optional component that is installed just now.
5. Replace the optional component that is installed just now.
For details, see *Installing Blade Accessories* on page 78.

A.8.2 Number of DIMMs Is Inconsistent

Description

The number of the displayed system DIMMs is less than that of the installed physical DIMMs.

Solution

To solve the problem, proceed as follows:

1. Make sure that all DIMMs of correct type are installed in the slots properly.
2. Check for consistency of the size and frequency of the installed DIMMs.
3. Re-install the DIMMs.
For details, see *Installing the DIMM on page 82*.
4. Replace the DIMM.
For details, see *Replacing the DIMM on page 84*.
5. If the problem persists, replace the ATCA-7150.
For details, see *Installing and Removing the Blade on page 91*.

A.9 Power Exceptions

A.9.1 ATCA-7150 Cannot Be Started

Description

The ATCA-7150 cannot be started.

Solution

To solve the problem, proceed as follows:

1. Make sure that the shelf is powered on properly.
For details, refer to the respective system documentation.
2. If you install an optional component on the ATCA-7150, remove the optional component and then restart the ATCA-7150.
3. Start another ATCA-7150 in the shelf. If it can be started normally, replace the faulty ATCA-7150.
4. If the problem persists, see *Uncertain Exceptions on page 109*.

A.9.2 ATCA-7150 Automatically Shuts Down

Description

The ATCA-7150 automatically shuts down without any explicit reason.

Solution

To solve the problem, proceed as follows:

1. Make sure that each component of the shelf is installed properly. For details, refer to the respective system documentation. If some components are not installed or are installed improperly, the ATCA-7150 may automatically shut down.
2. Replace the ATCA-7150.

A.10 Peripheral Exceptions

A.10.1 Keyboard Cannot Be Used

Description

All keys or part keys on the keyboard cannot be used.

Solution

To solve the problem, proceed as follows:

1. Make sure that the cable of the keyboard is connected properly and firmly and that the cable of the keyboard and that of the mouse are not connected reversely.
2. Make sure that the ATCA-7150 is powered on.
For details, see [Power-On on page 93](#).
3. Replace the keyboard. For details, refer to the document shipped with the keyboard that you use.
4. Replace the RTM of the server blade that works with the ATCA-7150.

A.10.2 Mouse Cannot Be Used

Description

The mouse cannot be used.

Solution

To solve the problem, proceed as follows:

1. Make sure that the cable of the mouse is connected properly and firmly and that the cable of the mouse and that of the keyboard are not connected reversely.
2. Make sure that the mouse works well on other ATCA-7150s.
3. Make sure that the mouse has been properly installed with drivers.
4. Make sure that the ATCA-7150 is powered on and started normally.
5. Replace the mouse.
For details, refer to the document shipped with the mouse that you use.

A.10.3 Monitor Remains Dark

Description

When you connect the monitor to the running ATCA-7150 or start some applications of the ATCA-7150, the monitor remains dark.

Solution

To solve the problem, proceed as follows:

1. Make sure that the power cable of the monitor is connected properly.
2. Make sure that the monitor is connected to the RTM of the server blade properly and firmly.
3. Make sure that you have turned on the monitor and properly adjusted the luminance and contrast control.
4. Power off the ATCA-7150 and then power it on again.

5. Replace the monitor or ATCA-7150. For details on how to replace the monitor, refer to the document shipped with the monitor that you use.
For details on how to replace the ATCA-7150, see *Installing and Removing the Blade on page 91*.

A.10.4 Monitor Display Is Abnormal

Description

Jittering, unreadable, rolling or twisted image is displayed on the monitor screen.

Solution

To solve the problem, proceed as follows:

1. If monitor self-test indicates that the monitor works normally, consider the position of the monitor. The magnetic field around other devices (such as transformers, electronic devices, fluorescent lights, and other monitors) may cause screen jitters, image fluctuation, or unreadable, rolling or twisted image.
2. Close the monitor if this condition happened. When you move a color monitor, the color of the screen may be distorted. Move the device and monitor. Make sure that the distance between them is at least 305 mm.
3. Turn on the monitor. If the problem persists, replace the monitor or ATCA-7150. For details on how to replace the monitor, refer to the document shipped with the monitor that you use.
For details on how to replace the ATCA-7150, see *Installing and Removing the Blade on page 91*.

A.10.5 No Information Is Displayed on the Monitor

Description

The ATCA-7150 LED is normal and no alarm is generated. However, no information is displayed on the monitor.

Solution

To solve the problem, proceed as follows:

1. Make sure that:
 - The RTM of the server blade is inserted properly.
 - The upper and lower ejector handles are fully closed.
 - The LEDs are in normal state.
2. Make sure that the cable connectors of the monitor contact well.
3. Check whether the DIMM is inserted.
4. If the DIMM is inserted, check whether it is inserted in the memory slot firmly.
5. If the problem persists, replace the DIMM with a new one.
For details, see [Replacing the DIMM on page 84](#).

A.11 Other Exceptions

A.11.1 USB Interface Cannot Be Used

Description

The USB interface cannot be used.

Solution

To solve the problem, proceed as follows:

1. Make sure that the USB device drivers are installed properly.
2. Make sure that the OS that you use supports the USB device.

A.11.2 Network Connection Is Faulty

Description

One or more ATCA-7150 cannot communicate with the external network.

Solution

To solve the problem, proceed as follows:

1. Make sure that the network module that you use is installed in the server system and works normally. For details, refer to the respective system documentation.
2. The setting in the network module is suitable for the ATCA-7150. For details, refer to the respective system documentation.
3. If the problem persists, see *Uncertain Exceptions on page 109*.

A.11.3 A Fault Occurs in Software

Description

A fault may occur in software.

Solution

To solve the problem, proceed as follows:

1. Check whether the problem is caused by software fault.
2. Check whether the ATCA-7150 has the minimum memory required by the software.
3. Check whether the design of the software is applied to the server.
4. Check whether other software can run on the ATCA-7150.
5. Check whether this software can run on other ATCA-7150s.
6. If an error message is generated when you use the software, refer to the document shipped with the software to get the details on the message and solution.
7. Contact Emerson Network Power technical support engineer to handle the problem.

A.12 Uncertain Exceptions

When you diagnose the faulty ATCA-7150, check whether the ATCA-7150 or the shelf has a fault.

- If all ATCA-7150s have the same symptom, it is very likely that a fault occurs in the shelf. For details, refer to the respective system documentation.
- If the shelf has multiple ATCA-7150s and one ATCA-7150 is faulty, troubleshoot the faulty ATCA-7150.

If you think that the fault is caused by software, see [A Fault Occurs in Software on page 109](#).

Damaged CMOS data or BIOS codes may cause some uncertain problems. To reset the CMOS data, contact Emerson Network Power for technical support. For detailed contact methods, see [Contacting Emerson Network Power for Technical Support on page 100](#).

Check whether the PEM of the shelf works well. If the PEM works well but the problem persists after you install the ATCA-7150 again, proceed as follows:

1. Make sure that the ATCA-7150 is inserted in the proper slot of the shelf. The ATCA-7150 is installed in one of the slots 1-6 or 9-14 at the front side of the shelf.
2. Make sure that the external cables that the ATCA-7150 and its RTM use are properly connected.
3. Power off the ATCA-7150 and remove it from the shelf.
4. Remove or disconnect the following devices (one at a time) until you find the fault. Re-install and power on the ATCA-7150.
 - a. SOL daughter card
 - b. Hard disk drive
 - c. DIMM

The hardware configurations enough to start the ATCA-7150 include:

- Main board
- One CPU
- One 512 MB DIMM



When the ATCA-7150 is configured with only one DIMM, the DIMM can be installed in DIMM interface 0 only. For the position of the DIMM interface, see [Figure 3-3](#).

- One hard disk
- Available shelf

5. Install and power on the ATCA-7150. If the problem persists, replace the following components in order:
 - a. Hard disk
 - b. DIMM
 - c. CPU
 - d. Main board
6. If the ATCA-7150 passes all system tests, a fault may occur in the external network connection.

A.13 POST Code Checkpoints

POST code checkpoints are the largest set of checkpoints during the BIOS pre-boot process.

Table A-1 lists the types of checkpoints that may occur during the POST stage of the BIOS and related solutions.



To clear the CMOS RAM or upgrade the BIOS, contact Emerson Network Power for technical support.

Table A-1 POST code checkpoints

Checkpoint	Description	Solution
03	Disable NMI, parity, video for EGA, and DMA controllers. Initialize: <ul style="list-style-type: none"> ● BIOS, POST, and runtime data area ● BIOS modules on POST entry and GPNV area ● CMOS 	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Replace the ATCA-7150.

Table A-1 POST code checkpoints (continued)

Checkpoint	Description	Solution
04	Check the CMOS diagnostic byte to determine whether battery power is proper and whether the CMOS checksum is proper. Verify the CMOS checksum by reading the storage area. If the CMOS checksum is wrong, update CMOS with power-on default values and clear passwords. Initialize data variables that are based on CMOS setup questions.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Clear CMOS and then restart the ATCA-7150. 3. Replace the ATCA-7150.
05	Initialize the interrupt controlling hardware and interrupt vector table.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Replace the ATCA-7150.
06	Initialize the system timer. Initialize the handler for system timer interrupt.	
08	Initialize the keyboard controller (KBC).	<ol style="list-style-type: none"> 1. Restart the ATCA-7150 2. Replace the ATCA-7150.
C0	Early CPU initialization starts.	
C1	Set the boot processor initialization information.	
C2	Set the boot processor initialization for POST.	
C5	List and set application processors.	
C6	Re-enable cache for the boot processor.	
C7	Exit the early CPU initialization.	
0A	Initialize the 8042 compatible KBC.	
0B	Detect the presence of PS/2 mouse.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150 2. Replace the PS/2 mouse and restart the ATCA-7150. 3. Replace the ATCA-7150.
0C	Detect the presence of the keyboard in KBC port.	
0E	Test and initialize different input devices. Also, update kernel variables. Disable handler for IRQ1 installation. Uncompress all available languages, BIOS logo, and silent logo modules.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Upgrade the BIOS and restart the ATCA-7150. 3. Replace the ATCA-7150.

Table A-1 POST code checkpoints (continued)

Checkpoint	Description	Solution
13	Initialize early POST chipset registers.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Replace the ATCA-7150.
24	Uncompress and initialize the specific BIOS modules of any platform.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Upgrade the BIOS and restart the ATCA-7150. 3. Replace the ATCA-7150.
30	Initialize system management interrupt.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150.
2C	Initialize different devices. Detect and initialize the video adapter that is installed in the system and has optional ROMs.	<ol style="list-style-type: none"> 2. Replace the ATCA-7150.
2E	Initialize all output devices.	
31	Allocate memory for the ADM module and uncompress it. Control the ADM module for initialization. Initialize the language and font modules for ADM. Activate the ADM module.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Upgrade the BIOS and restart the ATCA-7150. 3. Replace the ATCA-7150.
33	Initialize the silent boot module. Set the window for displaying text information.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Replace the ATCA-7150.
37	Display the sign-on message, CPU information, setup key message, and any OEM specific information.	
39	Initializes DMA controller 1 and DMA controller 2.	
3A	Initialize RTC date and time.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Clear CMOS RAM and then restart the ATCA-7150. 3. Replace the ATCA-7150.

Table A-1 POST code checkpoints (continued)

Checkpoint	Description	Solution	
3B	Test for total memory installed in the system. Also, Check for the Delete or ESC key to limit memory test. Display total memory in the system.	<ol style="list-style-type: none"> Restart the ATCA-7150. Replace the ATCA-7150. 	
3C	Initialize Mid POST chipset registers.		
40	Detect different devices (such as parallel ports, serial ports, and coprocessor in CPU) successfully installed in the system and update the BDA, EBDA, and so on.		
50	Program the memory hole or any kind of implementation that needs an adjustment in system RAM size if needed.		
52	Update CMOS RAM memory size from the memory found in memory test. Allocate memory for the extended BIOS data area from base memory.		
60	Initialize NumLock status and program the keyboard typematic rate.		
75	Initialize Int-13 and prepare for IPL detection.		
78	Initialize IPL devices controlled by BIOS and optional ROMs.		
7A	Initialize remaining optional ROMs.		<ol style="list-style-type: none"> Restart the ATCA-7150. Upgrade the BIOS and restart the ATCA-7150. Replace the ATCA-7150.
7C	Generate and write contents of ESCD in NVRam.		<ol style="list-style-type: none"> Restart the ATCA-7150. Check whether the BIOS write protection is enabled. If it is enabled, disable it and restart the ATCA-7150. Replace the ATCA-7150.
84	Record errors encountered during POST.	<ol style="list-style-type: none"> Restart the ATCA-7150. Replace the ATCA-7150. 	

Table A-1 POST code checkpoints (continued)

Checkpoint	Description	Solution
85	Display errors to the user and get the user response for errors.	Handle the fault according to the prompts displayed on the terminal.
8C	Initialize late POST chipset registers.	<ol style="list-style-type: none"> Restart the ATCA-7150. Replace the ATCA-7150.
8D	Build ACPI tables (if ACPI is supported).	
8E	Program peripheral parameters. Enable or disable NMI as selected.	
90	Initialize late POST of system management terminal.	
A1	Perform clean-up work needed before booting to the OS.	<ol style="list-style-type: none"> Restart the ATCA-7150. Replace the ATCA-7150.
A2	Take care of runtime image preparation for different BIOS modules. Initialize the IRQ routing table. Prepare the runtime language module. Disable the system configuration display if needed.	
A4	Prepare the runtime language module.	
A7	Display the system configuration screen if enabled. Initialize the CPU's system configuration screen before booting, which includes the programming of the MTRR's.	
A8	Prepare CPU for OS booting, including final MTRR values.	<ol style="list-style-type: none"> Restart the ATCA-7150. Replace the CPU. Replace the ATCA-7150.
AC	End POST initialization of chipset registers.	<ol style="list-style-type: none"> Restart the ATCA-7150. Replace the ATCA-7150.

A.14 DIM Code Checkpoints

The device initialization manager (DIM) gets control at various time during BIOS POST to initialize different system buses.

Table A-2 lists the checkpoints where the DIM module is accessed and solutions.

Table A-2 DIM code checkpoints

Checkpoint	Description	Solution
2A	<p>Initialize different buses and perform the following functions:</p> <ul style="list-style-type: none"> ● Reset, Detect, and Disable (function 0) ● Static Device Initialization (function 1) ● Boot Output Device Initialization (function 2) <p>Function 0 disables all device nodes, PCI devices, and PnP ISA cards. It also assigns PCI bus numbers.</p> <p>Function 1 initializes all static devices that include manually configured onboard peripherals, memory and I/O decode windows in PCI-PCI bridges, and noncompliant PCI devices. Static resources are also reserved.</p> <p>Function 2 searches for and initializes any PnP, PCI, or AGP video devices.</p>	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Replace the ATCA-7150.
38	<p>Initialize different buses and perform the following functions:</p> <ul style="list-style-type: none"> ● Boot Input Device Initialization (function 3) ● IPL Device Initialization (function 4) ● General Device Initialization (function 5) <p>Function 3 searches for and configures PCI input devices and detects whether the system has the standard keyboard controller.</p> <p>Function 4 searches for and configures all PnP and PCI boot devices.</p> <p>Function 5 configures all onboard peripherals that are set to an automatic configuration and configures all remaining PnP and PCI devices.</p>	

A.15 ACPI Code Checkpoints

ACPI checkpoints are displayed when an ACPI capable OS either enters or leaves a sleep state.

Table A-3 lists the types of checkpoints that may occur during ACPI sleep or wake states and solutions.

Table A-3 ACPI code checkpoints

Checkpoint	Description	Solution
AC	First ASL check point. Indicate that the system is running in ACPI mode.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Install the OS and drivers.
AA	Indicate that the system is running in ACPI mode.	
01, 02, 03, 04, 05	Enter sleep state S1, S2, S3, S4, or S5.	<ol style="list-style-type: none"> 1. Restart the ATCA-7150. 2. Install the OS and drivers again. 3. Upgrade the BIOS and restart the ATCA-7150.
10, 20, 30, 40, 50	Wake from sleep state S1, S2, S3, S4, or S5.	

Related Documentation

B.1 Emerson Network Power - Embedded Computing Documents

The Emerson Network Power - Embedded Computing publications listed below are referenced in this manual. You can obtain electronic copies of Emerson Network Power - Embedded Computing publications by contacting your local Emerson sales office. For documentation of final released (GA) products, you can also visit the following website:

<http://www.emersonnetworkpowerembeddedcomputing.com> > Solution Services >

Technical Documentation Search. This site provides the most up-to-date copies of Emerson Network Power - Embedded Computing product documentation.

Table B-1 Emerson Network Power - Embedded Computing Publications

Document Title and Source	Publication Number
RTM-ATCA-7150 Installation and Use Manual	6806800E87
ATCA-7150: Control via IPMI, Programmer's Reference	6806800E85
MESC-RTM-7150-FC Installation Information	6806800F90
MESC-RTM-7150-GE Installation Information	6806800F89
ATCA-7X50-HDDx-SAS/SATA Installation Information	6806800E28
ATCA-7x50-MEM Installation Information	6806800E27

B.2 Related Specifications

For additional information, refer to the following table for related specifications. As an additional help, a source for the listed document is provided. Please note that, while these sources have been verified, the information is subject to change without notice.

Table B-2 Related Specifications

Organization	Document Title
Intel developer.intel.com/design/servers/ipmi	Platform Management FRU Information Storage Definition v1.0 IPMI Specification v2.0
Intel developer.intel.com/design/servers/ipmi	IPMI Spceification V2.0

Table B-2 Related Specifications (continued)

Organization	Document Title
PICMG picmg.org/specifications.stm	PICMG 3.0 Revision 2.0 Advanced TCA Base Specification PICMG 3.1 Revision 1.0 Specification Ethernet/Fiber Channel

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